Conceptualising an Epistemology of Praxis for Teaching Research in Information Systems

By

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Originality declaration

This PhD thesis is my own work. I have used the Chicago Manual of Style (16th edition author-date) convention for citation and referencing. Each contribution to, and quotation in this PhD from the work of other people has been attributed, and has been cited, referenced and quoted appropriately. Student reflections have been indicated as such and coded with their initials. My own reflections are indicated with my initials WU. Images and tables presented in this work are all my own unless indicated otherwise.

SIGNATURE:

Signed by candidate

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DATE: December 2018

Είναι η πεποίθησή μου όπως εκφράζεται σε αυτή τη διατριβή ότι όλοι οι άνθρωποι πρέπει να είναι ελεύθεροι να ρωτήσουν για το λόγο για την ύπαρξή τους σε αυτή τη γη. Ωστόσο, το μεγαλύτερο μέρος της κοινωνίας επιδιώκει να περιορίσει τις ελευθερίες τους μέσω δογματικών πεποιθήσεων. Ως τελευταίο προπύργιο της ανθρώπινης ελευθερίας, πιστεύω ότι ο ηθικός στόχος της ακαδημαϊκής κοινότητας είναι να ενθαρρύνει την αναζήτηση αυτής της ελευθερίας και να βοηθήσει τους μαθητές κατά μήκος του δρόμου για να βρεθούν. Μόλις είναι πραγματικά ελεύθεροι μπορούν να ενεργήσουν με όποιο τρόπο επιλέγουν να συνεισφέρουν στην κοινωνία ή τον εαυτό τους. (W.F. Uys, 2017).

Keywords: Aristotle, Information Systems, Phronēsis, Praxis, Learning, Research, Reflection, Teaching.

Abstract

This dissertation engages with the perennial question of 'how lecturers learn to teach' and 'students learn to learn', through engaging with the development of one lecturer in the process of learning how to teach undergraduate students to do research in Information Systems at a Higher Education Institution in South Africa. Teaching and learning stand at the core of Higher Education, yet at the University where this research was conducted, 86% of the academics in the Faculty have no formal qualification in teaching and only extended programme students are enrolled in academic literacy courses. Teaching and learning are also not typical competencies that are included in discipline-specific curricula. Because lecturers are appointed as educators, it becomes a moral imperative for them to become proficient in teaching and learning. This thesis takes the position that adult educators and learners are able to teach themselves under the right circumstances. The research was based on a case study of learning to teach three groups of third year students over a consecutive period of three years in a research methods and philosophy course in Information Systems at a historically disadvantaged University in SA. Political imperatives of free and open access to higher education and the associated growth in student numbers, together with constrained financial resources and increasing academic workloads provide the context for this research against the Universities strategy to transition from a teaching to a research-based institution. These imperatives require new and innovative ways of teaching large groups of underprivileged students with minimal resources for doing research. Furthermore, the widespread adoption of the internet by students as their primary source of information has exposed a critical need for these kinds of academic literacies in discipline specific curricula. It is suggested that these skills can only be developed through practical experience and not as a theoretical curriculum. Praxis is guided by the Greek concept of phronēsis; which is the moral disposition to do what is right depending on the circumstances. By analysing the course reflections of 60 students using Aristotle's dialectics, this dissertation provides empirical evidence of '*how* students learn', '*how* to teach' students to be self-directed as well as '*how'* academics are able to learn to teach themselves. It is suggested that the current practice of prescribing to students *what, when, where* and *why* they should learn is harmful to their long-term self-directing capabilities. By fostering students' independence through enabling them *how* to learn, the lecturer reflexively becomes free to learn *how* to teach for him/herself. More importantly, this research has highlighted the absence of a knowledge component in contemporary models of experiential learning. These findings have implications for the broader sphere of teaching of research in Information Systems as well as developing students' critical and self-directed faculties. This is of value in preparing students for postgraduate research in any discipline, for developing students as lifelong learners, and in developing lecturers as critically reflective educators who know *'how'* and *'why'* to teach.

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With this dissertation I wish to recognise all the great teachers who have selflessly spent their lives in the classroom, communities and homes in the pursuit of developing good citizens.

I wish to acknowledge all the outstanding people who have enriched my life and supported me along the way to become the person who I am today. Thank you, I will forever remain indebted.

This dissertation is dedicated in loving memory to my father Johan Zimmermann, my mother Louisa Ferreira and my sister Natalie Leonie.

"And each one there

Has one thing shared

They have sweated beneath the same sun

Looked up in wonder at the same moon

And wept when it was all done

For bein' done too soon

For bein' done"

Neil Diamond

(Done to Soon)

Cura et Virtutis

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Abbreviations

AAUP:	American Association of University Professors
AGO:	Aims, Goals and Objectives
ALC:	Academic Literacy for Commerce
APA:	American Psychological Association
AR:	Action Research
CAR:	Curriculum Action Research
CBL:	Case-based learning
CE:	Critical Emancipatory
CEAR:	Critical Emancipatory Action Research
CHE:	Council on Higher Education
CPD:	Continuous Professional Development
CV:	Curriculum Vitae
D.Tech	Doctor of Technology
EL:	Experiential Learning
EMS:	Faculty of Economics and Management Sciences
GTD:	Getting Things Done
HDI:	Historically Disadvantaged Institution
HEI:	Higher Education Institutions
HEQC:	Higher Education Quality Committee
HoTEL:	Holistic approach to technology enhanced learning map
IBL:	Inquiry-Based Learning
IOP:	Institutional Operating Plan
IS:	Information Systems
MBA:	Master's in Business Administration
NQF:	National Qualifications Framework
NRF:	National Research Foundation
PBL:	Problem-based Learning
PBO:	Planning by Objectives
PhD:	Doctorate in Philosophy
PPP:	Phronēsis/Praxis Perspective
PSS:	Phronētic Social Science
RBL:	Research-Based Learning
ROL:	Research-Oriented Learning
RTL:	Research-Tutored Learning
SAQA:	South African Qualifications Authority
SAU:	A South African University (Pseudonym)
SDL:	Self-Directed Learning
SoTL:	Scholarship of Teaching and Learning
STEM:	Science, Technology and Engineering
TLC:	Transformative Learning
TRN:	Teaching-Research Nexus
TSW:	The Secret Weapon

Terminology

The following are definitions of some key terms that are used in this dissertation that may be different from everyday use of such terms. The frequency with which the term appears in this thesis are indicated in brackets.

Academics (89): A person that is engaged in academic activities such as teaching, research or supervision.

Course (451): A unit of learning that is arranged around a subject. Alternative terms are module, unit and even class.

Curriculum (346): The integration of course, coursework, tasks and activities that students need to complete in a specific module or course.

Degree (25): A qualification that is conferred at a University. This stands in contrast to a Diploma which is awarded at Technical universities and partial degrees.

Discipline (115): A vocation or industry that serves a specific purpose i.e. such as a 'Information Systems' or 'Accounting'.

Docent (3): A person that specialises in teaching at a University.

Education (648): "the action or process of educating or of being educated" OR "the field of study that deals mainly with methods of teaching and learning in schools" (education M-W, 2017).

Education (322): A person's total human development in the broadest sense e.g. *"spiritually, intellectually, socially, morally, politically, economically"* (Gutek, 1997).

Educator/s (164): "a person whose occupation is to give formal instruction in a school" (*educator* M-W, 2017).

Experience/d (207): "knowledge gained by actually doing or living through something" (*experience* M-W, 2017).

Expert (26): "having or showing exceptional knowledge, experience, or skill in a field of endeavour" (expert M-W, 2017).

Expertise (23): "specialist skill or knowledge" (expert M-W, 2017)

Knowledge (284): Of five kinds. Epistemology, Sophia, nous, phronēsis and techne. See Aristotle's Gnosis in the next section.

Learner (42): A person or student that participates in acquiring new knowledge and/or skills.

Learning (563): "to gain knowledge or understanding of or skill in by study, instruction, or experience" (learn M-W, 2017).

Lecturer/s (164): A person who teaches others by means of speech.

Lecturing (15): "a discourse given before an audience or class especially for instruction" (lecture M-W, 2017).

Module/s (98): A course or class that needs to be completed as part of a degree.

Moral (116): Refers to human or humanistic actions.

Novice (21): "a person who is just starting out in a field of activity" (*novice* M-W, 2017).

Practice (213): Things that are done professionally.

Practitioner/s (36): Someone who practices in a profession. (practitioner M-W, 2017).

Profession (19): "a calling requiring specialised knowledge and often long and intensive academic preparation" (profession M-W, 2017).

Professional (43): "characterized by or conforming to the technical or ethical standards of a profession" (professional M-W, 2017).

Professor/s (57): "The title given in institutions of higher education to the most highly ranked teaching posts, where the teachers in question are an acknowledged authority in their field" (professor Wallace, 2015).

Qualification (21): A professional or academic recognition of achievement of specific course or degree requirements.

Reflection (415): *"an active, persistent, and careful consideration of any belief or supposed form of knowledge in light of the grounds supporting it and future conclusions to which it tends"* (Dewey, 1933, 6).

Research (885): "studious inquiry or examination; especially: investigation or experimentation aimed at the discovery and interpretation of facts, revision of accepted theories or laws in the light of new facts, or practical application of such new or revised theories or laws" (research M-W, 2017).

Scholars (18): "a person of deep wisdom or learning" or "a person with a high level of knowledge or skill in a field" (scholar M-W, 2017).

Schooling (19): Refers to *"deliberate instruction (in a discipline) such as when a teacher teaches some knowledge or imparts some skill to the learner"* (Gutek, 1997).

Student/s (1167): "scholar, or one who is studying" (student Online Etymology Dictionary, 2010).

Subject/s (171): From "subject matter" or literally from Aristotle "that which lies beneath" or "to place under, throw under, bind under; subordinate" (subject Online Etymology Dictionary, 2010).

Teachers (103): "A person who teaches, especially in a school" (teacher M-W, 2017)

Teaching (625): "to cause to acquire knowledge or skill in some field" (teach M-W, 2017).

Topic/s (210): "pertaining to a common place, of a place, local," from topos meaning "place" (topic Online Etymology Dictionary, 2010).

Training (47): "Instruction and drill with a specific end in view" (*training* M-W, 2017).

University (134): "an institution of higher learning providing facilities for teaching and research and authorized to grant academic degrees; specifically: one made up of an undergraduate division which confers bachelor's degrees and a graduate division which comprises a graduate school and professional schools each of which may confer master's degrees and doctorates" (university M-W, 2017).

Aristotelian terminology

Some key technical terms, mainly from Aristotle's works, that are used in this dissertation are defined here in order to facilitate ease of reading, as they have come to mean something different in modern terminology.

Gnosis: *"*Ways of knowing of which there are five, namely nous (intuition), episteme (science), techne (art), phronēsis (practical wisdom) and Sophia (wisdom)" (Aristotle, NE, Book VI). Traditionally referred to as the epistemological perspective, however epistemology is merely one form of Gnosis or knowing (Eikeland, 2007).

Praxis: Action that "is guided by a moral disposition to act truly and rightly; a concern to further human well-being and the good life" (Smith, 2011b).

Phronēsis: "knowledge of how to secure the ends of human life" (NE, TOC).

Science: "demonstrative knowledge of the necessary and eternal" (NE, TOC).

Art: "knowledge of how to make things" (NE, TOC).

Intuitive reason: "knowledge of the principles from which science proceeds" (NE, TOC).

Philosophic wisdom: "the union of intuitive reason and science" (NE, TOC).

Definition: "the formulating of specific proofs (or syllogism) of what constitutes the essential nature of something and is expressed in grammatical form" (APo, 94a10-12)[i].

Thesis: "a supposition of some eminent philosopher that conflicts with the general opinion" (Top. 11 104b19-40).

Antithesis: "those facts which form the matter of the affirmation or denial" (Cat, 12b8-10).

Hypothesis: "That which is capable of proof but assumed by the teacher without proof…if the pupil believes and accepts it" (Apo, 76b25-30).

Synthesis: "constitutes the essence of a subject in terms of its three causes i.e. the matter, the form and the substance. In essence a synthesis is identical to the subject under investigation" (APo, 96b5-15).

Diaresis: "Division of terms into their respective species or individuals. Used as part of the process of formulating definitions" (105b31-37).

Diagnosis: Dia = through, gnosis = knowing: Knowledge that is obtained through or from the circumstances surrounding an issue or topic.

Problem: "The subjects on which reasonings take place" (Top, 101b15). Phrased as a question.

Propositions: "statements that form the process of reasonings" (Top, 101b15).

Category: "One of four classes of things, namely accident and genus, species or property that jointly form the definition. Expressed in terms of ten predicates namely "Essence, Quantity, Quality, Relation, Place, Time, Position, State, Activity, Passivity" (Cat, 103b20-25).

Topic: "The common (middle) element in a category or sequence of categories" (APo 97b10).

Subject: "Distinguished by branch of knowledge i.e. ethics, philosophy, logic" (Top, 105b19).

Argument: "Of four kinds, didactic, dialectic, examination and contentious" (Top, 165a39).

Didactic Arguments: "reason from principles appropriate to each subject, and not from opinions held by answerer' (Top, 165b1-2).

Dialectic Arguments: "Reasoning from opinions that are generally accepted" (159a25).

Examination Arguments: "Teaching and learning where reasonings (discussions) are in the spirit of inquiry and not competition" (Top, 169b23-29).

Contentious Arguments: "False reasoning from true premises" (Top, 171b30-35).

Mis-reasonings: "True reasoning from false premises" (Top, 101a8).

Papers Published

Uys, W. F., Mia, A., Firfirey, F., Jansen, G. J., Der, H. Van der Schyff, Josias, M. A., Khusu, M, Gierdien, M., Leukes, N.A., Faltein, S., Gihwala, T., Theunissen, T.L. and Samsodien, Y. (2012). Smartphone Application Usage amongst Students at a South African University. In P. Cunningham and M. Cunningham (Eds.), *IST-Africa 2012 Conference Proceedings* (pp. 1–11). Dar es Salaam: IIMC.

Ngaleka, A. and Uys, W., 2013. m-Learning with WhatsApp: A Conversation Analysis. In D. E. Ivala, ed. *The 8th International Conference on e-Learning ICEL-2013*. Reading: Academic Conferences and Publishing International Limited, pp. 282–292.

Uys, W. and Chigona, W. 2015. Strengthening the teaching-research nexus in a large first-year information systems class. *Proceedings of the 44th South African Lecturers Association (SACLA) conference*, Wits, Johannesburg. June 2015.

Uys, W.F. & Chigona, W., 2018. Introducing Research in the Undergraduate Information Systems Curriculum. In S. Kabanda and H. Suleman (Eds.), *Proceedings of the 47th Annual Southern African Computer Lecturers Association*. Gordon's Bay: University of Cape Town.

The seeker is not the sought.

The search is not the searched.

The finder is not the found.

I have come to a realisation of self

I can see myself expressed in me.

I am not me, but an expression of me.

The world is not it, but an understanding of me.

Ego is not I but me.

Awareness (is I)

Act from awareness not thought.

(WU. Critical Self-Reflection, 22/2/2009)

Chapter I Introduction

> "In colloquial language: the teacher teaches with the head and the heart and must feelingly know what is the appropriate thing to do in ever changing *circumstances* with children who are organized in groups but who are also unique as individuals" (van Manen, 1995:33).

"'THESIS' is a supposition of some eminent philosopher that conflicts with the general opinion…for it follows of necessity from what has been said that either the mass of men disagree with the philosophers about the thesis, or that the one: or the other class disagree among themselves, seeing that the thesis is a supposition in conflict with general opinion. Practically all dialectical problems indeed are now called 'theses'" (Aristotle, Topics Bk I Ch. 11 104b19-40).

This is my thesis [ii].

I.1 Preamble

When I asked the outgoing Dean of the Faculty of Economics and Management Sciences at a South African University (SAU)[1], during a meeting of the convocation that was called to vote for/against an outspoken chairman, what he thought about 'Academic Freedom' at this university, his words to me were:

> "I can't even arrange a meeting without senate having to approve my guest list."

This was not always the case. This university, renowned as a liberal university, had long been known as the intellectual home of the left that emerged at the forefront of the struggle to free South Africa (SA) from white oppression. After the first fully democratic elections in 1994, the South African government increased central control of South African Universities through the enactment of a "Council on Higher Education (CHE)" tasked to accredit degree programmes, allocate funds to universities and audit quality assurance (Cherry, 1997). This resulted in the establishment of the Higher Education Quality Committee (HEQC, 2001) in 2001 with the aim of 'institutionalizing quality assurance in higher education'. They reason they advanced was that there was a *"demand for greater accountability and efficiency in respect of public financing, trends towards mass participation in the face of*

[1] SAU is used as an acronym for a South African University where this research was conducted.

shrinking resources, and greater stakeholder scrutiny of education and training processes and outcomes" (HEQC Founding document). The carrot they held out for such a lofty ambition was to *"ensure that higher education and training programmes at under-graduate and postgraduate levels are relevant and responsive to the needs of learners, employers and other stakeholders within the context of the social, intellectual and economic requirements of societal development"*. The stick that they wield is that they control the curriculum, who teaches it and how it should be taught in order to be accredited.

> "Accreditation refers to a recognition status granted to a programme for a stipulated period of time after an HEQC evaluation indicates that it meets minimum standards of quality" (CHE, 2017).

A number of related acts were promulgated such as the National Qualifications Framework (NQF) Act of 2008 resulting in the establishment of a 'South African Qualifications Authority'. The effects of these acts and governing bodies are that changes to curriculum are now centrally mandated, and any significant changes to curricula need to go through processes of revision. Their roles are to ensure that Universities meet certain standards and criteria for their graduates, and also stand in a position of denying such institutions accreditation…which means that graduates will not be able to register as practitioners in an unaccredited field. Through the promulgation of such acts, designed to redress the imbalances of the past, academic freedom was gradually taken away from the executive bodies of Higher Education Institutions (HEIs).

Furthermore, discipline specific governing bodies have established 'model curricula' to which Universities need to conform. These are mostly in the specialised disciplines such as Medicine, Law, Accounting and Psychology and have not yet been implemented for disciplines such as computer science and information systems; however, the recent establishment of the South African Higher Education Computing Accreditation Board (SACAB) indicate that such accreditation will soon be required for CS/IS/IT degrees and diplomas.

How these influences constrain academic practices has not gone unnoticed by the CHE. According to the CHE (2006), the blame can be placed on three levels in the system, namely the government, institutions, and academics themselves. Their view is that government restricts autonomy through controlling funding models to redress the

apartheid legacy as well as throughput and emphasis on specific research outputs. Furthermore, they lay the blame at 'institutional bureaucrats' and councils that restrict the academic freedom of individual academics through appointing, funding, promotion and tenure prescriptions. Lastly, they place the blame on the individual academics who direct their efforts where it is most lucrative (research) instead of where it is needed most: in the classroom. In the process, the function and purpose of HEI's as institutions of reason appear to have been lost.

> "The university of today is a fractious collection of interest groups in which customers (formerly known as students) demand high grades for their money, while researchers with large frequent-flyer accounts (formerly known as faculty) seek to minimize their teaching 'loads'" (Helfand, 2011:158).

This dissertation sets out to explore the kinds of choices that an academic can make in the classroom if not constrained by the educational system, as well as the kinds of choices that a student can make if not constrained by the lecturer or the curriculum.

I.2 Introduction

This thesis critically engages with the dual concept of teaching and learning at a historically disadvantaged Higher Education Institution (HEI) in South Africa. The setting is a third year Information Systems course on research methods and philosophy. The empirical example spanned a period of three years of teaching students to become self-directed learners. A philosophical approach of critical praxis extracted from the works of Aristotle, and a contemporary research approach of phronetic social science provides the backdrop for the dialectical analysis of the students' and lecturers' course reflections. This thesis critically questions the widely used approach of 'banking education' that aims to initiate students into a discipline and calls for a re-emphasis of a system of 'liberal education' or praxis where the students' capacities to learn and critically question their personal epistemologies becomes de rigueur for the course.

I.3 Research problem

In academia, one would expect professors to be professing, managers managing, administrators to be administering, teachers teaching, students studying, researchers researching and supervisors supervising. This statement appears to be an

unproblematic proposition…yet is not so in practice. From my point of view, this is not what is happening in Universities at all, especially at SAU. Subject experts are 'acting' as educators in a profession for which they have no qualification or training in. In other words, administrators have not been taught how to administer, neither have managers been taught how to manage, teachers have not been taught how to teach, nor students how to study, also not researchers how to research[2] nor supervisors how to supervise. There are of course exceptions to the rule. *Therein lies the problem.* In effect, the faculty administering, teaching, studying, researching or supervising are all domain experts or 'experts' on their subjects[3] and not experts in their profession or the vocations they are practicing. It's a bit like the Emperor's clothes.

For example, in the EMS faculty at SAU at the time, only 14% (n=19) of the lecturers out of 134 had some formal training or education in the field of education[4] and one of the administrators was qualified as an administrator[5]. Heads of department are appointed based on seniority and excellence in their disciplines and not by virtue of any management training or experience (unless their discipline is management). One can thus assume that faculty taught themselves how to teach, supervisors how to supervise, managers how to manage, administrators how to administer, and so forth. In general, most academics have had some training in research methods as part of their discipline; however, this did not include the teaching of research in my case.

In terms of this study, the roles above can either mean that one is 'qualified' in the discipline, and/or that one is practising in the discipline (Wallace, 2015). I.e. if one stands in front of a classroom of children explicating, then one could rightfully be called a teacher, even though not necessarily trained to do so. This does not, however, infer competence or the lack thereof. For example, a qualified teacher can be

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[2] Maybe with the exception of researchers having attended postgraduate methodology courses; however, these often fall short of teaching them how to present their research in the public domain, i.e. to publish.

[3] "A subject-matter expert (SME) or domain expert is a person who is an authority in a particular area or topic" (Subject-matter_expert Wikipedia, 2017)

[4] From the Faculty Calendar the following qualifications are indicated: Higher Diploma in Education (14), Bachelor in Education (2), M.A. (Teaching English as a Second Language) (1), Diploma in Adult Education (1), Teacher Development Diploma (HDHET) (1).

[5] In this Faculty, the Dean is a Professor in Social Science, the Faculty Manager has a Master's in Commerce, the senior faculty officer a Bachelor in Administration, the faculty officer a National diploma, and a B.Com law, and the admin officer a B.Com. Secretaries and admin assistants have no post-matric qualifications.

incompetent in teaching, much as an unqualified teacher can be exceptionally competent as a teacher.

Complementary to this problem of who teaches the teacher is that students are not being taught how to learn. A brief scan of the curriculum in this faculty (Economics and Management Sciences) shows no specific training in learning techniques except for an optional module offered to students who had barely made acceptance to the course. This module is referred to as 'Academic literacy for Commerce' (ALC) and is conducted in the first year of the extended four-year course for these students. It covers basic aspects of learning such as academic writing, effective study methods and so forth. Most students see this module as a barrier to them continuing with the 'real' disciplines for which they enrolled, and whether these students learn how to learn from this course is questionable. In the end, these students are placed in a dependency situation where the professors are responsible for what they learn, how they learn and when they learn. In this way their individual freedoms are limited to what is placed before them in terms of the curriculum.

As long as students are committed to absorbing lessons and prescriptive statements derived from the wisdom of others, they will remain ignorant of how to use their own minds to reason about things. As Newman (1852:278) illustrates, if we study the works of a great mind (his example is Burke), "we may become feeble imitators". If we study their methods, we may "arrive at some ability of our own". In the words of Dewey (1910), we should be training students how to use their minds correctly i.e. training them to think, rather than giving them the material to think on. This is not a new problem and has persisted since classical times. During Aristotle's times there were 'Paid Professors of contentious arguments" giving their students prepared arguments to study by rote, instead of teaching them how to reason (Soph n.d.:183b36-40). Freire (2005), in his concept of 'banking education,' explains that students need to be brought to a critical awareness of how society, through media and discourse, is trying to constrain their thinking. Ironically, once students know how to think and reason, they can reason on many subjects, and not just the subject they are trained in.

I.3.i Thesis statement

How is it possible then, that teachers have not been taught how to teach and learners have not been taught how to learn? Herein lies a dialectical problem. In South Africa, lecturers are appointed based on a Master's degree or higher in a specific field or discipline. How is it possible, then, that in institutions that pride themselves on preparing people for a particular discipline or profession, are not themselves professionals in their discipline of teaching? The question then remains: who teaches the teacher to teach or the learner to learn?

> *"Teaching in higher education is a rather interesting profession. To enter it, people are trained for years in one area of their occupation (i.e. research) while most often not trained in another (i.e. teaching). Yet the latter area takes up much time in an academic's day-today activities. University teaching staff are often left to develop their understanding of teaching and learning on their own"* (Berthiaume, 2009:215)

If it is possible that educators have taught themselves to teach, why do we need any education for teachers? Likewise, with the corollary of teaching, which is learning. How is it that students who are educated in a discipline are not taught how to learn in that discipline? Have they also taught themselves how to learn?

> Contrary to the current assumption that disciplinary education is sufficient to qualify one to teach or learn in that discipline, I claim that, if one is able to learn *how* to learn for oneself, one can also learn *how* to teach, as well as learn any subject that one sets one's mind to, providing that one has access to appropriate information sources. This would be possible through an epistemology of praxis as will be examined in this dissertation.

I.3.ii Research aims

This thesis advocates the call by Kroeze, Pretorius and Roode (2010) to connect students with research, research our teaching and teach our research; to Dewey (1910) to teach students *how* to think rather than *what* to think; to Newman's (1852) call for a universal education and Aristotle's (Aristotle, n.d.) imperative for a return to practical wisdom.

> "Teaching students to be enquiring or research-based in their approach is not just a throwback to quaint notions of enlightenment or liberal education but

> central to the hard-nosed skills required of the future graduate workforce" (Jenkins, Healy and Zetter, 2007:3).

This dissertation proposes an approach of praxis where students and educators *discover* knowledge in a *dialectical process* of research as opposed to the prevalent banking education that aims to fill students' minds with facts (Freire, 2005). Thirdly, this study is multidisciplinary in nature and integrates the perspectives of Pedagogy in Information Systems research from a philosophical perspective of praxis.

The particular case study involved a cohort of third year information systems (IS) students over a period of three years whose reflections on the course were analysed; yet the theoretical propositions derived from this case can be generalised to the teaching of research in undergraduate education (Ruddin, 2006). Fourthly, this research aims to contribute to the debate on self-directed learning, both from the teacher and student perspective as a dialectical process of praxis.

I.3.iii Research questions

The emergence of research questions in Praxis are contextually bound, yet their value lies in contributing to the general rhetoric on the particular problem space. Praxis does not presuppose a particular problematic from a deductive perspective, but the researcher explores the particular problem inductively (Eikeland, 2012; Regelski, 1998). The formulations of the following questions are as a result of sustained reflective practice over a period of three years of learning how to teach undergraduate students how to do research. Even though, during the course of my teaching, there have been numerous problems to solve and questions to answer, the following questions remain as the main or significant questions that were examined in this dissertation. Fundamentally, if professors in higher education have not been taught how to teach, and students have not been taught how to learn, and so on for the other vocations, how is it possible that they have become good in what they do. One can only conclude that they have taught themselves. From this conundrum arises the following primary research question[6]:

RQO. *How* does one learn to teach oneself in higher education? [7]

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[6] See Table XII.11 in Appendix XII.2.i on the research questions and how I answered them.
[7] See Roode (1993) for the implications of 'how does' questions i.e. "the phenomenon or problem is directly observed and described as it manifests itself in reality".

In order to provide answers to this primary research questions, there were a number of secondary questions that I explored during the research process:

RQ1 How do I get students to participate in class? (2/2011)

RQ2 How do I teach students to be critically reflective? (4/2011)

RQ3 How do I make research fun for the students? (5/2011)

RQ4 How do I teach students to conduct research of their own? (5/2012)

RQ5 How do I teach students to teach themselves? (2/2013)

RQ6 What does it mean to teach (my teaching approach) (3/2013)

Naturally, the experience is a personal and unique whenever an academic learns how to teach and a student learns how to learn. These questions thus are not able to answer general questions of teaching and learning yet are intended to contribute to the theoretical debate on teaching and learning by abstracting epistemological concepts from the practical context. In addition, questions of 'praxis' are aimed at the reasoned *'why'* (Flyvberg, 2001). Thus, they explore the circumstances of such action which requires an exploration of the kinds of action or *'what'* happened and *'how'*, and also the situational context of *where* and *when*. This provides a rich description or analysis of *'what is'*, and also explanations of *'why'* it is so, thereby uncovering prescriptive recommendations and new actions of *'how'* it should be done (Gregor, 2006:620).

I.3.iv Why this research

Teaching students 'how' to learn prepares them better for professional practice and a career of lifelong learning as opposed to teaching them facts and figures, although both kinds of knowledge are needed by professionals (Winch, 2014). In a post-industrial society where information is freely available, information expands exponentially, and knowledge quickly becomes obsolete, it has become important for us to step back and look at the fragmentation of disciplines and try and understand what knowledge competencies are common across all these disciplines and what knowledge acquisition skills students need to develop. One way to manage the rapid growth in fields such as Science, Technology, Engineering and Medicine (STEM) is increasing specialisation (Muller, 2015). The other is expanding the already full curriculum and putting increasingly greater pressure on students to assimilate ever increasing and narrower

sections of this vast fields of knowledge. The third is to focus "on the learner and the act of learning" at the risk of de-emphasising disciplinary-specific knowledge (Muller, 2015). This refers to fundamental competencies which can be improved in order to assist students in making better choices in whatever field they may choose.

> "Simply teaching subject knowledge falls short of ensuring new practitioners are empowered to question, and potentially improve upon, *what* they are doing or *why* they are doing it" (Smith, 2011a:218)

Considering the tremendous growth and availability of electronic information, it is suggested that students do not need more information, but rather the ability to discern and apply such information in practice. In other words, if there is such a thing as common knowledge and skills, there must inter-alia be a science of *'common knowledge'* or skills, something that each discipline needs to be educated in. This common knowledge is aimed at the 'common good'. As Aristotle maintains in his thesis on Ethics, it is no good to know what is good, but to act in a manner that is good.

> "all knowledge and every pursuit aims at some good, what it is that we say political science aims at and what is the highest of all goods achievable by action" (Aristotle, EN 1095a12-15).

As is generally thought, being in possession of the required information today is fairly easy, yet this alone is not sufficient to know what the right things is to do in practice or to act on such knowledge. There are many self-help books on how to think and grow rich (Hill, 2011), how to build a business empire (Branson, 2007), and even how to raise your child (Raise-a-Child, wikiHow 2005). The website WikiHow has over 190,000 free how-to articles. Then there are, of course, numerous academic books on learning how to teach in higher education (Ramsden, 2003) and learning how to learn (Wirth and Perkins, 1998); however, these books are of limited value if they are not read or applied in practice. A good life can only be had by being good. As Aristotle indicates, a good life can only be had by being practically wise.

> "The life of money-making is one undertaken under compulsion, and wealth is evidently not the good we are seeking; for it is merely useful and for the sake of something else. And so one might rather take the aforenamed objects to be ends; for they are loved for themselves. But it is evident that not even these are ends" (Aristotle, EN 1096a5-10).

Yet, having the right knowledge does not mean that one knows how to act in a particular situation. More importantly, it doesn't tell one when to act, how to behave and why it should be important.

> "But to play the coward or to act unjustly consists not in doing these things, except incidentally, but in doing them as the result of a certain state of character, just as to practise medicine and healing consists not in applying or not applying the knife, in using or not using medicines, but in doing so in a certain way" (NE, 1137a20-25).

What Aristotle is calling for is what he refers to as phronēsis (prudence). It is this practical wisdom that a common education should seek.

> "Critical common-sensism has strong affiliations to the notion of phronēsis" (Constantinides, Chiasson and Introna, 2017:4)

The next step is to explore what Aristotle means by phronēsis.

> "To prudence belongs right decision, right judgement as to what is good and bad and all in life that is to be chosen and avoided, noble use of all the goods that belong to us, correctness in social intercourse, the grasping of the right moment, the sagacious use of word and deed, the possession of experience of all that is useful" (NE, 1250a30-35).

Know-how goes beyond the memorisation of facts and figures to learning how such facts and figures have been constructed in the first place (Hirst, 1968).

In SA, students are demanding free education, free houses, free work, yet in all this they are not themselves free to choose what to learn or even how to learn it. It has therefore become critical to re-connect them with the abilities to discern rightly (or choose wisely) and be able to act on these choices. This is what a universal education intends.

> "It is the education which gives a man a clear conscious view of his own opinions and judgements, a truth in developing them, an eloquence in expressing them, and a force in urging them" (Newman, 1852:286).

This kind of education is not merely to be well informed about a subject (Whitehead, 1967), but as Newman asserts *"If then a practical end must be assigned*

to a University course, I say it is that of training good members of society. Its art is the art of social life, and its end is fitness for the world" (Newman, 1852:285).

I.3.v Research contribution

It is the claim of this thesis that the education of students is principally about the development of good students or practitioners who are able to critically think and reflect for themselves; schooled in the praxis of doing the right thing depending on the circumstances. In praxis, the contribution is not an IS artefact (Orlikowski, Iacono and Suzanne, 2001), but results in good teaching and well educated students that can make a contribution in the discipline (Smith, 2011b).

> "The fields of praxis are politics, public management, teaching, etc., which aim for *neither artefact* nor *abstract knowledge*, but the public good, individual, and social well-being" (Ngwenyama and Klein, 2018:3)

In the process of establishing this thesis, a practical contribution was made in the lives of more than 210 students over a period of three years. Some of the outcomes are not measurable; however, these students are already being sought after in corporate positions at large corporates and smaller organisations in SA. This needs to be contrasted against the current situation where there are many graduates in SA who have to do menial jobs for a living as they cannot find employment in their vocations. Secondly, this thesis contributes to the discourse on practical education, education of praxis, authentic learning, self-directed learning, research-led learning, reflective practitioners as well as critical reflection.

> "Questioning the choices we make in our research, and setting our sights on the consequences emerging out of those, should increase our chances of individually and collectively revealing the relevant current and future ends of IS research" (Constantinides, Chiasson and Introna, 2017:17).

In practice, the students that participated in this project managed to conduct a survey of over 2000 students on their choices and reasons for using mobile phone apps and communication options on smartphones.

I.4 Research process

This research started as a practical problem on how to get students to participate in class and ended with and through a process of research on how to teach them to be critically reflective and self-directed. The main steps that were taken through this process are illustrated as follows.

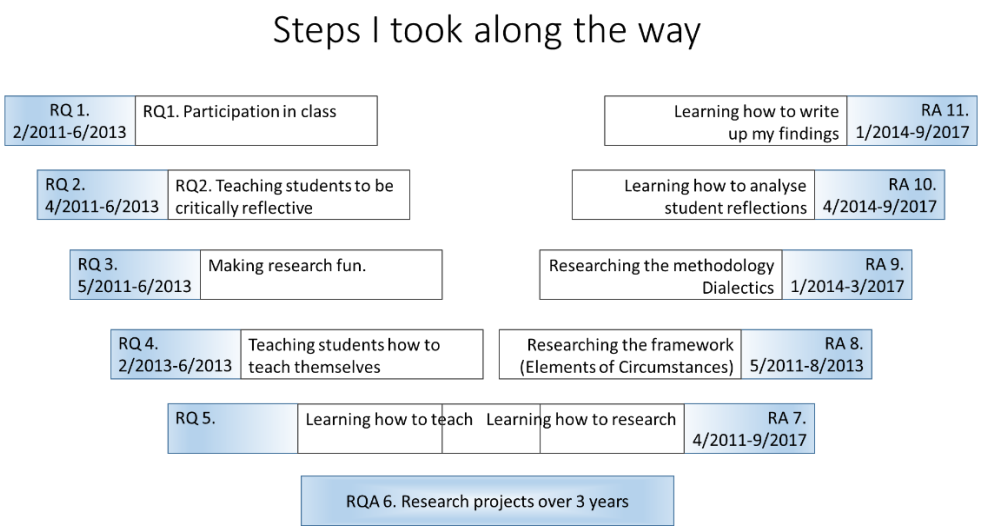

Figure I.1 Research process

Although these steps appear to be logical and ordered, the process itself was not. The process proceeded through a sequence of teaching activities, during which certain questions emerged in practice. These were then investigated in terms of current theory and practice, and adjustments were made to what I taught, how I taught and so forth. Once the 'learning to teach' process had been completed, the 'learning to research' process started in uncovering the research framework, methodology, analysis of the students' reflections and learning how to write these into an acceptable form. In this way it gave me valuable insights both in terms of my teaching practice, and in terms of how I think.

I.4.i Research context

This research is based on the examination of the introduction of IS research in the undergraduate IS curriculum at a South African institution, with its own socio-political and historical context. As such, the practical findings may only apply to this context.

I.4.ii Research limitations

Due to the changing nature of the curriculum, the differences between institutions and students, and the advances in pedagogy and IS practice, the findings made in this

thesis may not necessarily be applicable to other contexts, despite superficial similarities. It is therefore cautioned that the methodology of praxis as presented here is seen to provide the means of further testing and implementation of a curriculum of praxis in differing circumstances, rather than taking the process of this study as specific "rules" for implementing a curriculum of praxis in IS research, or even expecting specific rules for implementation.

I.4.iii Overview of the thesis

This thesis consists of ten chapters. Following is a brief overview of the purpose and content of each chapter.

In Chapter I, I outline the research problem and questions in the context of a poorly funded and highly regulated Higher Education system in South Africa, a system where educators and students are indoctrinated in a discipline and not trained to learn and think for themselves. I examine the lack of educator training in HEI's and the emphasis on disciplinary education as opposed to teaching students how to learn. I question the practice that teachers and students have learned their skills of teaching and learning informally, in a system of higher education that prides itself in formal education. This raises questions on how this is possible and how it occurs in practice. I claim that it is critical to understand these informal processes of teaching and learning in an information age where informal learning is prevalent. This calls for better teaching and learning through praxis. I present the context for this research as a course on research methods and philosophy in IS at a historically disadvantaged higher education institution in South Africa. I also include provisional limitations to this thesis.

In Chapter II, I broadly review the literature on the historical context of teaching and learning in HEI's and the dialectical tensions between disciplinary education and the disciplines of teaching and learning in South Africa. This occurs in a system that emphasises free access to higher education, reduced entrance requirements, poor maths and science marks at school, limited funding and pressures on academics to graduate greater numbers of students in order to generate more fees. Further calls by the DHET to standardise and govern the IS curriculum across institutions is contrasted with the Humboldtian ideal of freedom of teaching and learning. This is exemplified by the absence of research in the model IS curriculums, with research only being taught at two of the top ten Universities' CS & IS departments. One way of

decolonising the curriculum in IS would be to transition from didactic approaches of teaching to leading students to research and inquire for themselves in a way that is favoured by a research-based learning approach.

Chapter III explores my secondary question of teaching students how to learn and do research. In this chapter I review the literature on theories of learning, student-led learning and self-directed learning and how these inform teaching students how to learn for themselves. In the Section 3 of this chapter I explore active learning approaches such as blended learning, case-based learning, action-learning, problem-based learning, inquiry-based learning and research-based learning. These, are all active strategies that can be used in the classroom to foster learning, as opposed to teaching strategies such as lecture-based learning. In Section 4 I review the literature on experiential learning and how we learn from our experiences. In Section 5, I review the literature on the central role of reflection and critical reflection in fostering self-regulated learning. In the final section of chapter 3, I explore possible approaches for teaching and assessing critical reflection in support of my research (RQ2) on how to teach my students to be critically reflective.

In Chapter IV I explore the literature on learning how to teach in HEI (RQ0). In Section 1, I review the three primary orientations to teaching and how these assumptions influence the way that educators design their courses. In Section 2, I review the literature on research pedagogy in support of RQ5 on how to teach students to do research. In this section I highlight the need to integrate teaching and research in the discipline, and the changing role that this requires in the educator to transition from the primarily teaching-based approach in education, to a research-based approach. In section 4, I review the literature on teacher development in HEI in SA, and how academics learn to teach through self-directed learning. In section 5, I examine the concept of expert teaching and what practices are necessary to transition novice teachers to expert educators. Central to this process is the role of reflection in professional practice, a topic that I explore in greater detail in Section 6. In Section 7, I present a summary of Chapter IV.

In Chapter V, I advance the argument that a revised curriculum that favours research requires a different approach to conceptualising our curriculum. In Section2, I outline the classical versus alternative approaches to curriculum design, and why this requires an inductive approach to curriculum development. In Section 3, I outline the

concepts of praxis, and how it is informed by the Aristotelian concept of phronesis (practical wisdom). In Section 4, I present a broad outline of the Aristotelian concept of phronesis and how this differs from episteme (theory) and practice. In Section 5, I outline Aristotle's system of practical reasoning as essentially founded in dialectical reasoning and compare modern theories of dialectics with those of Aristotle. In Section 6, I outline what Aristotle means by dialectical reasoning, and in Section 7, I provide a summary of Chapter V.

In Chapter VI, I present the methodology that I used for designing my instruction, as well as the methodology for analysing the result of my teaching. In Section 2 I present my research design of curriculum action research as well as the cycles of research that I went through in the teaching process. In Section 3, I present the case study, participants, and data sources. In Section 4, I outline the research method that I derived from Aristotle's extant works as complementary to the broader sphere of phronetic social science research. In Section 5 I outline the method of analysis and apply it to the generic term of 'How' as part of the analysis on 'How' I taught and 'How' students learned.

In Chapter VII, I outline how I designed the research curriculum. In Section 2, I outline how I designed the course to emphasise the learning/research process of students. In section 3, I present the use of assignments as the primary means of teaching students to research, and how these were designed to develop the students self-directing capabilities. In Section 4, I conceptualise the research curriculum and the experiences of the students over the three years of teaching.

In Chapter VIII, I engage critically with the research experiences of the students and reflect on how this influenced my teaching approach. In Section 2, I explore my teaching approach as reflected through my students' reflections. In Section 3, I explore how I taught students to teach themselves, i.e. become self-directing. Central to this process is the development my students as critically reflective practitioners, a question that I analyse in Section 4. In Section 5, I explore the question of how to foster student participation in class.

In Chapter IX, I collate the findings of the research that was done in Chapters VII and VIII into a coherent theory of experiential teaching and learning. In Section 2, I represent 'why' this is important and how it is conceptualised. In Section 3, I explore the theoretical implications of this theory in terms contemporary theories of learning,

self-directed learning and reflective practice. In Section 4, I explore the practical implications of this research, jointly in terms of the underlying theoretical framework and the implications for experiential and research-based learning practices.

In Chapter X, I conclude this research by outlining the support that I provided for my research questions (Section 1), the theoretical statement where I present and evaluate the theoretical framework (Section 2) and the research contributions (Section 4) in terms of the philosophical, theoretical, methodological, disciplinary and practical contributions. I conclude this research by highlighting the research limitations and areas for further research and by providing a final statement.

See *Figure I.2 Thesis Chapters Storyboard* on the following page for a graphical representation of all the chapters.

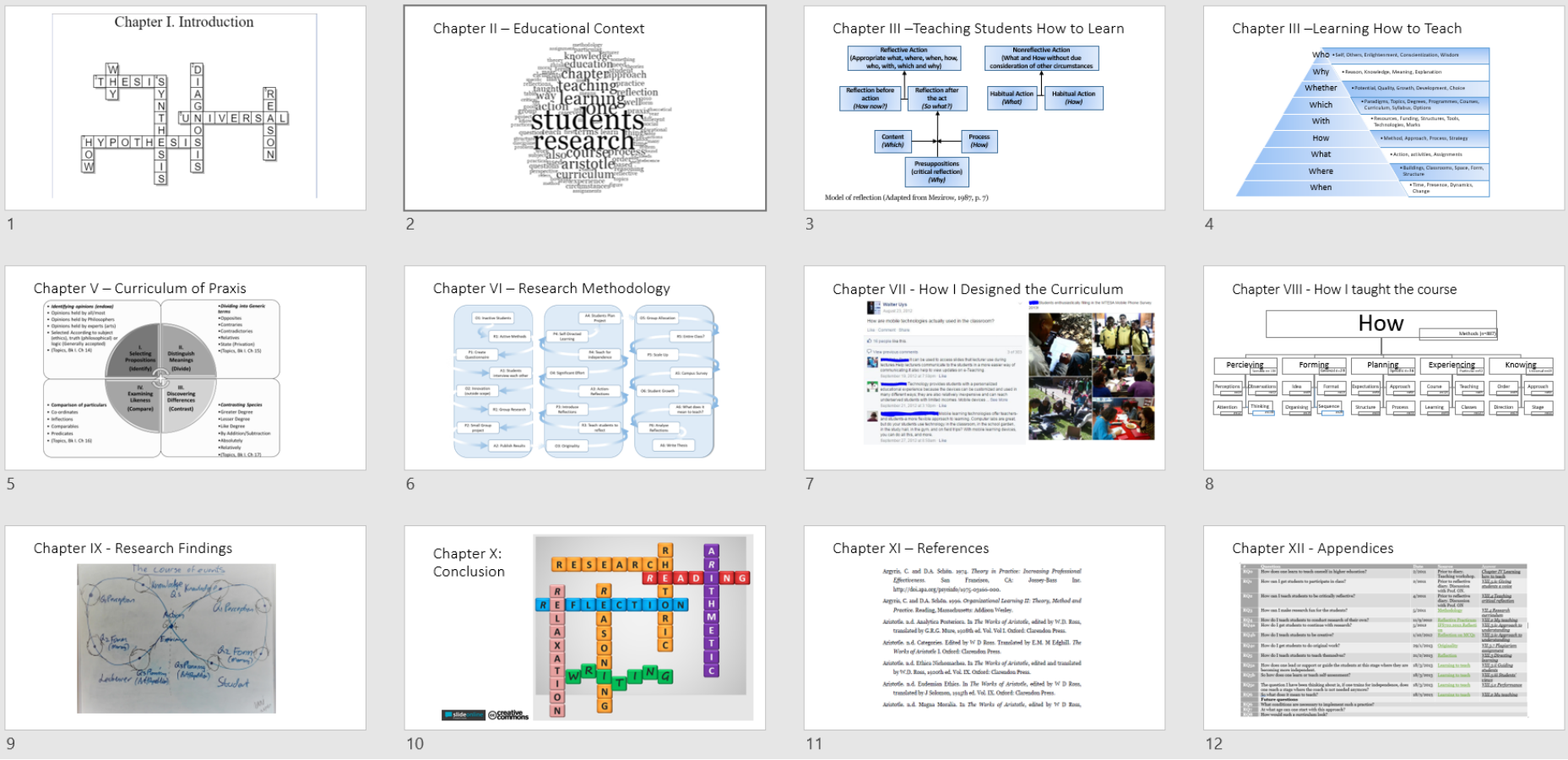

Figure I.2 Thesis Chapters Storyboard

I.5 Conclusion

Teaching is not an elementary matter. Neither is research. Researching one's teaching and teaching one's research is exponentially more complex. This is not for the faint of heart. For me, the process had a number of wrong turns, dead-ends, U-turns and roundabouts. After the process it is easy to assemble a coherent thesis that appears to be linear, but this is not so in reality. This is the risk that I found with students who had not been trained in research. They see the end product and then think it is paint by numbers. In this process there are a lot of emotions involved, a lot of interactions with others, a lot of reading, a lot of writing, a lot of reflection and a lot of learning. In the end, one half of the process i.e. the teaching part, is sufficient for most academics i.e. how to be a good teacher. This is of great value to our society and we need more good educators. The second half i.e. researching one's teaching, is necessary firstly for the educator to make sense of his practices i.e. to uncover the reason 'Why' he did what he did, and more so to present his reasons to a community of practice, without which these learning points will pass away with him. In the end, the process is an end in itself. It guides the educator and learner to a place of understanding that he would not have been privy to, had the process not been completed. As Aristotle asserted:

> "For the training given by the paid professors of contentious arguments was like the treatment of the matter by Gorgias".
>
> "For they used to hand out speeches to be learned by heart, some rhetorical, others in the form of question and answer, each side supposing that their arguments on either side generally fall among them. And therefore, the teaching they gave their pupils was ready but rough".
>
> "For they used to suppose that they trained people by imparting to them not the art but its products, as though any one *professing* that he would impart a form of knowledge to obviate any pain in the feet, were then not to *teach* a man the art of shoe-making or the sources whence he can acquire anything of the kind, but were to present him with several kinds of shoes of all sorts: for he has helped him to meet his need, but has not imparted an art to him" (Aristotle, Soph. 183b36-40).

Figure I.3 Thesis Word Cloud

Chapter II Educational context

> "Now each man judges well the things he knows, and of these, he is a good judge. And so, the man who has been educated in a subject is a good judge of that subject, and the man who has received an all-round (universal) education is a good judge in general" (EN, 1095a1-10)[iii].

CONTEXT refers to "the circumstances, conditions, or objects by which one is surrounded" (*context* M-W, 2017). For Durkheim (1961:17) "We cannot usefully treat any teaching problem, whatever it may be, except by starting where we are in time and space, i.e., with the conditions confronting the children with whom we are concerned".

II.1 Introduction

This chapter provides a broad overview of the context of Higher Education in South Africa, and explains how Universities have changed from being institutes of reason to becoming disciplinary institutes. This is important because this context provides the backdrop in which this research occurred and influences the challenges that I experienced, the questions that I formulated and the approaches that I adopted in this research.

In Section 2, I review the literature on Universities as institutions and the changing role of HEI in the context of South Africa.

In Section 3, I examine the context of the South-African University (SAU) where this research was conducted. In this section I examine the socio-economic and historical context of this Historically Disadvantaged University (HDU) and how the changing nature of education in South Africa have placed increasing pressure on academics to teach and students to learn.

In Section 4, I explore the trend for Universities in SA to transition to research-based institutes, and the general lack of research in the UG curriculum in SA and what it means to teach research. In Section 5, I conclude with a summary of this chapter.

II.2 Universities as institutions

In 1852 Newman (1852:v) recognised that the role of the university[8] is to be "a place of teaching universal *knowledge*". From this one can learn two things. Firstly, universal knowledge does not mean discipline-specific knowledge such as required in the *"fine and useful arts, trades, and in ways of business, for these are methods, which have little or no effect upon the mind itself, are contained in rules committed to memory, tradition, or use, and bear upon an end external to themselves"* (Newman, 1852:187). Secondly, if it was for the advancement of scientific knowledge alone, a University would not have students…except for students learning how to do research, i.e. researchers in training and researchers themselves. Thus, for Newman, knowledge is a *"state or condition of mind, and since cultivation of mind is surely worth seeking for its own sake….and that there is a knowledge, which is desirable, though nothing come of it, as being of itself a treasure, and a sufficient remuneration of years of labour"* (Newman, 1852:188). These are basic principles that Aristotle had established in his Nicomachean Ethics more than 2300 years ago as an education in virtue and are as relevant today as they were then.

Newman extends Aristotle's argument on universal knowledge by saying that *"a man who has been trained to think upon one subject or for one subject only, will never be a good judge even in that one: whereas the enlargement of his circle (the capacity to think and reason) gives him increased knowledge and power in a rapidly increasing ratio"* (Newman, 1852:277).

Thus, teaching students' basic facts and theories that are required to practise in a profession is only sustainable as long as this knowledge can be applied in the same circumstances from which they have been derived and where that knowledge is still relevant. Any variation in context results in the immediate failure of such rules that were learned in practice. It is only when the student is required to start reasoning and researching on matters in general, such as occurs in postgraduate work or in the workplace, that these shortcomings become evident.

[8] From universitas (L.) meaning "the whole or aggregate" or *unus* meaning one and *versus* meaning to transform referring to 'transforming the one into a whole' (University, Online Etymology Dictionary, 2010).

> "Perhaps this lack of sensitivity to experiential knowledge is another manifestation of the prevalent attitude in the academy of the value of theory over practical experience" (Klein and Rowe, 2008:680)

This puts immense strain on the educational system and academics who, after many years of schooling, have to teach their students how to think and reason for themselves. Why can't we make reason the 'raison d'être' of higher education, and the subject the encore? We are teaching the 'facts of the matter' and not 'the matter of the facts' i.e. we are still teaching students the subject and not the ability to *judge* or *reason* in the subject.

> "Judgment does not stand here for a certain homely, useful quality of intellect, that guards a person from committing mistakes to the injury of his fortunes or common reputation; but for that master-principle of business, literature, and talent, which gives him strength in any subject he chooses to grapple with, and enables him to seize the strong point in it" (Newman, 1852:277).

So where does one find such an institute of reason, where the main course is the "cultivation of the mind"? How come one cannot enrol in an institution to "Learn how to learn"[9]? Is this the privilege of Philosophy or Philosophers only? Or was Newman wrong to claim that a University should be an institute of reason and that universities should be an institute of vocation? The narrow division of Faculties into specific disciplines and degrees indicates this emphasis on disciplinary education. Thankfully as problems become more complex to solve from a specific disciplinary perspective, interdisciplinary and multidisciplinary approaches are becoming more prevalent.

Realistically, we do need doctors, lawyers and engineers, etc. But at what cost? Where is the value if such a person knows 50% of the subject matter that he is expected to know but does not know how to think and reason for himself when applying this knowledge in practice[10]. Yes, reasoning in a discipline is an art that requires a vast knowledge base from which to reason from. Yet we are attempting to teach the student

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[9] Except possibly if one enrols in a degree in the discipline of Philosophy.

[10] The required pass mark for a subject in South African HEI's is 50%. In some cases school pass have been reduced to 20% e.g. for mathematics and 30% as a and as a pass-barrier for all other subjects (School Pass Marks in South Africa vs the Rest of the World, 2018). Entrance to HEI's in SA has been reduced to 30% mark in the language of learning placing further pressure on an already struggling HEI system (Government Changes Minimum Entry Requirements for a Bachelor's Degree in South Africa, 2018).

how to reason and learn about the subject, by means of the subject, and not by getting straight to the point and teaching the student how to think and reason in the first place and then apply that sharp intellect to a particular social or practical problem. Part of the problem may lie in that it is extremely difficult to teach someone how to reason well, especially if not trained in the art of reasoning oneself.

II.2.i The development of Higher Education

Since classical times, the debate on education has revolved around whether one should develop students' broader intellectual abilities or prepare them for a practical vocation. This finds expression in the often neglected Thomist distinction of education versus schooling; where education refers to a person's total human development in the broadest sense e.g. *"spiritually, intellectually, socially, morally, politically, economically"* whereas schooling refers to *"deliberate instruction (in a discipline) such as when a teacher teaches some knowledge or imparts some skill to the learner"* (Gutek, 1997). This debate has been taken up by educators since Plato (Turan, 2011), Aristotle (Met n.d.), Kant (1798), and more recently by Newman (1907), Dewey (1910), Kolb (Smith, 2010), Miller (2007), Ranceire (Lewis, 2012) and Freire (1970a; 1994) and in the discipline of IS by Moody and Buist (1999). Kant (1798) distinguishes between "true" and "useful" knowledge, and guides the classification of theoretical or practical disciplines in higher education or the distinction between theory and practice. The dilemma, however, is still not resolved and finds its expression in the predominant approach of banking education (Freire, 2005) or in the pedagogical practices of explication (Waite, 2013).

> "Factors such as a factually oriented course (Gow and Kember, 1990), a reproductive assessment regime (Thomas and Bain, 1984), *didactic teaching* (Gow and Kember, 1993) and over-formal academic departments (Ramsden and Entwistle, 1981) can all induce students to employ a reproducing approach for particular learning tasks or courses" (Kember and Leung, 1998:305–6).

Not only does this reduce students to a reproductive approach, but in my experience encourages a reproductive approach for educators as well, where the same textbooks, presentations, assignments, tests and examinations are presented year after year with minimal changes to the content.

European universities started out as institutes of learning, not teaching a particular vocation…i.e. they were a place for scholars. From the 19th century onwards

they became centres of scientific research (The University Experiment, 2014). Yet the practices of teaching predate Socrates, Plato and Aristotle to some of the earliest recorded teachings from Homer, Aeschylus, Sophocles, Euripides and even Confucius and Buddha. No-one gave them a teaching qualification; they were just teachers. Neither did those who taught in the initial European universities have any teaching qualification. In effect during medieval times, after six years of study, a Master's degree of Arts was awarded that invested its recipient with the right to teach anywhere '*Ius ubique docendi*' (Medieval_university Wikipedia, 2017).

II.2.iiThe faculties of Higher Education

The medieval scholars, who were trained in the liberal arts, were taught arithmetic, geometry, astronomy, music theory, grammar, logic, and rhetoric during the first three years of their studies, all in Latin (Medieval_university Wikipedia, 2017). Once these basic subjects were mastered, the student could continue in a discipline such as law, medicine or theology. This trivium of grammar, logic and rhetoric was dispensed with in modern education, and replaced by the higher faculties of law, medicine and business. Miller (1987) has some suggestions as to why, for example, Rhetoric was eventually abandoned as a general subject in academia to become a specialist subject practised by just a few. The reality is that all disciplines and all educators use rhetoric to teach. Rhetoric is foundational to education, yet it is missing in action so to speak. The same applies to grammar and logic. Very few degrees have these as foundational subjects, yet they all incorporate these in the discipline. Instead, liberal arts were formed as a faculty on their own and now have to compete for space and budgets at Universities (especially in SA) that focus on STEM (Science, Technology and Engineering) education.

II.2.iii Teaching in Higher Education

Historically, students in higher education were taught how to teach as part of their education in a discipline, thereby conferring on them the title *'licentia docendi'* (Medieval University Wikipedia, 2017). As the emphasis moved from a liberal education towards vocational training, the training of academics was dropped in favour of discipline specific competencies. As a result, few academics today have been trained in the discipline of education. Consequently, academics have a large degree of freedom to choose what to teach and how to teach it. This freedom has, however, not meant that they research their own practices, and this leads to limited progression

beyond banking education. Of course, there are numerous approaches to teaching in higher education (some of which will be examined in Chapter 3). The important aspect to note is the disappearance of the role of the University in developing educators as opposed to initiating students into a particular discipline.

II.2.iv The Humboldtian ideal

The distinction between teaching/learning and disciplinary education is exemplified in the distinction between the Humboldtian model of central Europe, and the Anglo-Saxon model that has been broadly adopted in the United Kingdom and that influenced the United States. These ideals are enshrined in four key principles (Ash, 2006:246).

- *"Freedom of teaching and learning"* (Lehr- und Lernfreiheit Ger.). This ideal represents the freedom for professors to decide what and how to teach and for students to choose their professors and subjects to learn. This stands in stark contrast with a formal curriculum as practiced today.
- *"The unity of teaching and research"* (Einheit von Lehre und Forschung Ger.). Learning is seen as a collaborative venture between teacher and student and the aim is science and scholarship
- *"The unity of science and scholarship"* (Einheit der Wissenschaft Ger.). Both natural and social sciences are seen as knowledge sciences (Wissenschaft)
- *"The primacy of 'pure' science"* (Bildung durch Wissenschaft Ger.) over specialised professional training (Ausbildung , Spezialschulmodell Ger.). Science is seen as a process of scholarship and not an end product that must be learned from textbooks. It emphasises the process of learning and capacity to reason as opposed to abilities of rote memorisation.

On the one hand is the German ideal of academic freedom (Lehrfreiheit Ger.) and on the other the American empiricist tradition with its emphasis on content knowledge and disciplinary skills (Halvorsen and Nyhagen, 2011:322). The liberal perspective is represented by the Germanic concept of knowledge construction (Bildung Gr.) that recognised "that an educated person needs to acquire clearly defined skills, yet went further by recognising that the activity of the content acquisition – the learning process – was a constituent part of education" (Halvorsen and Nyhagen, 2011:323). Bildung represents the "answer to the question about the role of the subject capable of making his own judgements within a civil society" (Halvorsen

and Nyhagen, 2011:323). Humboldt's ideal appears however to be lost over time, and Germanic HEI's became a system of education based on "rigid objectivity and intense specialization that eventually became the hallmark of German scholarship" (Halvorsen and Nyhagen, 2011:323).

The Humboldtian myth has since been debunked (Ash, 2006) yet the ideals on which this myth is based are still widely proclaimed as the ideals of HEI at a time when European universities look towards the US Ivy League and top British Universities for guidance in finding a balance between the dichotomies of public versus privately funded institutions, research versus teaching and emphasis on the liberal arts versus discipline or scientific specific education.

It would of course be risky to focus on only a few of the differences between the European, UK and US models of higher education and also to dichotomise these regions as being representative of the many diverse forms of HEI's have adopted in these countries. Because US universities were established later than the European and Germanic models, they appear to have inherited the best of both worlds by including the formal curriculum and collegiate model of the UK and the Germanic model of academic freedom, research and public service (Cohen and Kisker, 2010).

Trends in the US point to greater access to Higher Education, a move towards professionalisation of disciplines, curriculum is focused on workforce needs, governance has become more centralised and bureaucratised, institutions have become more dependent on public funding, outcomes are directed towards a trained workforce, and research is directed at scientific research that is financially rewarding and is ameliorated by the Germanic ideal of the public good (Cohen and Kisker, 2010:5). Unique to the US system is an introductory degree that is designed to train students in the liberal arts…i.e. prepare them for 'moral citizenship' rather than a profession.

What is important for this thesis is to gain an overview of these differences and the tensions that existed between them and how these influenced the educational context in South Africa.

II.2.v South African HEI

Like the US, the South African Higher Education system was highly influenced by the British and European model through scholars that emigrated from primarily Scotland, Ireland, England, Holland, Belgium and Germany to South Africa in order to teach in the colonies (Pells, 1954). This is, however, where the similarities end. In SA, Universities initially trained teachers for the schools that were springing up in the rapidly expanding colonies (Pells, 1954). As such, all graduates possessed some form of teaching skills at graduation. This function changed over time as curricula became specialised in a particular field or discipline. The status quo is the University that is divided into Faculties, each comprised of a number of major disciplines. At one stage, students could enrol for a 'double major' mainly in a single faculty, but this was changed with recent funding policies, and now students need to major in one field and one faculty. The highest form of such learning is demonstrated with the conducting of a significant piece of research in a particular field or discipline that culminates in a dissertation for the conferral of a PhD. Any skills of teaching would only have been acquired incidentally as these courses were dropped in preference of vocational skills. Research is done mainly at a postgraduate level.

II.2.vi Decolonising the curriculum

300 years after establishing an educational system in SA, there are vocal objections to the colonisation of the curriculum and broad calls for a return to an African epistemology (Jansen, 2017; Quinn and Vorster, 2017). Initially emerging more than twenty years after the first free and democratic elections in South Africa in 1994; in response to students' objections to the Rhodes statue at UCT representing all that was considered wrong with apartheid and colonialism, this debate quickly broadened into general discussions on free higher education (Point, n.d.), language policies, the transformation of universities in SA, the curriculum, the naming of buildings, roads and other historical artefacts (Murris, 2016:285). These discussions also influenced debates on how the curriculum should be structured and what knowledge sources should be used, if not those of colonialism. For Murris (2016:291), the protests represented a call to "include an enquiry into the notion of 'situated knowledges'…and the inclusion of indigenous knowledge systems in higher education curricula".

Clearly there are some valid concerns with the way that educators currently teach at HEI's in SA, and the perceptions that students have of the colonialist influence in

HEI teaching and learning. Le Grange (2016:8) suggests a number of "alternative views of curriculum such as: the stories students are told about their past present and future; curriculum-as-lived, hidden and null curriculum; and the active conceptual force of *currere* open up possibilities for decolonising the university curriculum." In this way students can also engage with the integration of knowledge and self in context, whilst educators should focus on creating a space for the oppressed voice in an African context (le Grange, 2016).

II.2.vii Student voice in HEI

The student voice in higher education in SA is represented by these increasing demands for access to higher education through reduced entry requirements (Government Changes Minimum Entry Requirements for a Bachelor's Degree in South Africa, 2018), fees must fall campaign (Cloete, 2016), and the Rhodes must fall campaign (Murris, 2016) in rebellion against the strict apartheid regime and what is perceived as an oppressive colonialist system of higher education with admission requirements that are deemed exclusionary especially for historically disadvantaged individuals (Herman, 1995). Although initially directed at the removal of the Rhodes statue at UCT, the violent protests were widened to include demands for free access to tertiary education and accommodation as well as symbolising an oppressive colonialist educational system.

Chetty and Knaus (Chetty and Knaus, 2016) suggest that apartheid's legacy is still experienced in the corridors of Higher Education, and that students' lack of advancement through the system can be blamed on the ineffective schooling system in the poorer areas as well as socio-economically disadvantaged students that are academically underprepared and struggle to meet the rigorous, financial and social demands of academic life. In line with Freire's pedagogy of the oppressed, "the oppressed wants to become like the oppressor" (Freire, 1970a). These needs appear to be reflected by students wishing to obtain the privileges of a degree (physical access) without the required epistemological access (Morrow, 1994). Physical access does, however, not guarantee epistemological access, and the high dropout rates of students are still a concern at HEI's in South Africa (Letseka and Maile, 2008). Clearly these contextual influences have an effect on students' perceptions of what is expected of them in HEI.

> "There are no shortcuts to producing the weighty corpus of advanced knowledge across the disciplines that we so desperately need from this side of the world." (Jansen, 2017:13).

These demands for free/easier access to higher education are made against the backdrop of a failing primary and secondary education system (Jansen, 2017), the lowest level in maths and science literacy, with SA being ranked second last (38th out of 39th) in grade 9 mathematics and last in Science (South African Performance on the Trends in International Mathematics and Science Study (TIMSS), 2017), a skills shortage in the engineering and IT fields (The Worrying Truth behind SA's "Improved" Maths and Science Marks, 2018) and a return of South African's credit rating to 'Junk' status (One Graph Showing South Africa's Credit Rating History: 1994 – 2017, 2018).

> "The low performance of South African learners for mathematics at grade five and nine (and science at grade nine) is linked to the factors at home, school and community environments. Generally, the learners at independent schools performed very well followed by fee-paying public schools. The worst affected learners are those from no-fee public schools" (South African Performance on the Trends in International Mathematics and Science Study (TIMSS), 2017).

Furthermore, learners in grade 9 and 10 are advised not to enrol in the more 'difficult' subjects such as maths, science, Information Technology (Programming) and Computer Applications Technology (Computer Literacy), possibly in a bid to improve the national pass rate, resulting in fewer entrants to Universities that have any experience in Computer Studies.

II.2.viii Student voice in curriculum development

In areas of curriculum development, the student voice is mostly absent. The idea that Universities exist for students (Walker, 2015) appears to be idealistic. In SA, the curriculum is determined at an institutional level and ratified by the Department of Higher Education and training (DHET). In disciplines that do not have a representative professional body such as in Medicine (Health Professions Council of South Africa), Accounting (South African Institute of Professional Accountants (SAIPA) or the Chartered Institute of Management Accountants (CIMA)) or Engineering (The Engineering Council of South Africa (ECSA)), the curriculum development process appears to be an ad-hoc process of inheritance and incremental

changes. There is limited synergy across institutions in matters of curriculum development particularly in these fields.

In South Africa, the Institute of IT Professionals (IITPSA) was established to foster greater synergy amongst IT Professionals, but their membership remains voluntary and their influence latent. A new body for Information Systems, Computer Science and Information Technology curriculum in SA, the South African Computer Accreditation Board (SACAB), has been established to implement a system of accreditation for the profession according to the SEOUL accord. The purpose of SACAB is to assist in CS/IT/IS programme reviews at HEI's and to provide procedures and standards for degree and diploma accreditation programmes and for programme reviewers in terms of their roles, responsibilities, processes and documentations. They are comprised of senior academic and industry representatives in South Africa and are linked to the IITPSA, South African Computer Lecturers Association (SACLA) and the South African Institute of Computer Science and Information Technology Professionals Council (SAICSIT). This is a recent development and their influence is still to be felt at grassroots levels. It is however likely that they will exert greater influence in standardising CS & IS curriculum in South Africa, thus reducing the amount of freedom and influence that academics and students may have in co-constructing an emergent curriculum in terms of the Humboldtian ideal.

II.3 SAU context

SAU was established in 1959 as a University College for "non-whites other than Bantu" (SAU Then and Now, 2014). The policy that informed the establishment of these Colleges was informed by the apartheid doctrine of Verwoerd as outlined in his Senate Address in 1954:

> "The school must equip the Bantu to meet the demands which the economic life of South Africa will impose on him…there is no place for him in the European community above the level of certain forms of labour. Within his own community, however all doors are open …" (Verwoerd in Nicholas, 1985:10).

In 1994, SA opened its door to a new democracy, and there was a strong sense of freedom for all of those who had participated in the struggle to achieve democracy. Since 1994, there have been significant changes in Higher Education in SA, specifically by consolidating Universities and Colleges that serve the same geographical areas.

Also, more equitable representation of students and faculty, changing student politics, the role of higher education "between free trade and the public good", changing values "rise in Economic Sciences and decline in Humanities", and the new academic workplace were implemented (Jansen, 2004:293).

These demands have been strengthened in recent years with calls for free higher education for all (Cloete, 2016; FeesMustFall, n.d.)[iv]. Reduced matriculation university exemption requirements and open admissions policies have also led to a large influx of students without an equal growth in revenue and funding (Herman, 1995), resulting in high lecturer to student ratios[v]. Furthermore, SAU prides itself on redressing the disparities of the past by biasing admissions to previously disadvantaged individuals, against a backdrop of shrinking quality and standards (Herman, 1995:271)[vi]. This is a difficult task without the required resources (Omar, 2000:7)[vii].

In effect the open admissions policy, and funding formula based on successful graduation are a double-edged sword at HBUs, spreading existing resources thinly amongst the high intake of students, and achieving minimal funding as a result of low throughput.

II.3.i Economic context

Prior to 1994, the dominant and intermediate tier Universities were well resourced, with the subordinate tier having rather low levels of resources, almost no research infrastructure and offering mainly diplomas (Hendry and Bunting in Naidoo, 2004:461). At the time of the establishment of the SAU, the government expenditure per annum on white pupils was approximately R75 ($7), whereas that of the African pupil approximately R5 (50 US cents).

The large intake of students post-1994 at SAU led to a significant drain on the resources of the University, and a related budget cut in government funds pushed SAU into a bankrupt position. A recapitalisation programme by the South African Government in the region of R170 million (± $17 million at the time), as well as donor funders such as Belgium's VLIER programme (± R21 million over 10 years) and the Rockefeller foundation (±R26 million) out of an estimated R164 million over the period 2002-2012 (Penny and Africa, 2006) were attempts at bringing the financial state of SAU back in the black.

II.3.ii Increasing strain on Higher Education

All of these influences placed a considerable strain on the University's financial resources, the lecturers and the students, and in some way, something had to give: the quantity, quality, fees or salaries, or the sanity of educators and students (King in Herman, 1995:271)[viii]. This can be contrasted to the situation ten years earlier, where Nicholas (1985) highlights some of the actual challenges at SAU:

- The university has a high proportion of inexperienced staff
- Due to scarcity of resources, budgets are frugal
- The high pupil to staffing ratio necessitates heavy teaching timetables.
- In many areas of the curriculum there is a dearth of teaching material
- Gaining access to suitable teaching material for teaching at an appropriate level requires imaginativeness, intellectual flexibility and a high degree of energy and initiative (Hunter, 1977:94)

Balancing the complexity of the curriculum between academic standards as expressed by the needs of industry or the professional role of the education, and the academic competency of the entering students, particularly with regards to reading and writing ability, against available teaching material appears to have been of great concern in such a developing institution (Hunter, 1977).

> To be able to cope with the demands of the third world university seems to require a 'super-academic' with boundless dedication and flexibility (Nicholas, 1985:12).

For Paxton and Frith (2013:172) this has resulted in the relegation of reading and writing skills in preference to disciplinary education[ix].

II.3.iii Culture of entitlement

Post-1994, students saw the new government as a way to gain the privileges of the oppressor. Jansen (2004) outlines how student youth organisations and their leaders were swept up in the wave of the "gravy train" of South African politics. Being given cell phones, car allowances, plush offices, full or partial fees and a seat on key committees in the institutions was par for the course. Many of the Historically Disadvantaged Universities (HDI's) were expecting large government pay-outs, and the pressure with increasing numbers and lack of student fee payment, requests by

students to be bailed out of debt, led some of these Universities including SAU falling into bankruptcy (Jansen, 2004).

> "University vice-chancellors experienced their highest turnover in years; senior administrators lived through periods of unprecedented stress; some campuses became completely unworkable, with extremely violent acts from inside and outside these institutions. A newly-elected, democratic government stared down on a set of institutions – many of which had become completely ungovernable – and found its very authority, if not legitimacy, threatened by an unstable, volatile higher education" (Jansen, 2004:304).

Slowly but surely, new policy changes and government interventions turned this state of affairs around, and shifted the control of policy and student affairs back to the institutions (Jansen, 2004). On average, enrolments at South African Universities are 15% of the population (Cloete, 2014), and this varies between White (56%), Indian (54%), African (16%), and Coloured (14%) (Cloete, 2014). With all the debate about open access, Herman (1995) refers to Morrow (1994) who distinguishes between formal access and epistemological access:

> "Learning how to become a participant in an academic practice…cannot be 'automatically' transmitted to those who pay fees, or collect handouts and attend classes regularly" (Morrow in Herman, 1995:271).

II.3.iv Changing nature of Higher Education in SA

With the integration of Vocational Colleges and Technicons with Universities, the line between vocational and theoretical training had become blurred. There are still some legacies, e.g. a professional doctorate can be obtained at the newly-established Universities of Technology, and is called a D Tech or Doctor of Technology. Practically, this qualification is not considered on the same level of rigour as a PhD. Furthermore, a strong emphasis had been placed on the establishment of business schools affiliated to the larger Universities, offering professional qualifications in business management (Jansen, 2004). These institutions offer a Master's in Business Administration (MBA), and a Doctorate in Business Administration (DBA) all associated with a significant increase in fees e.g., an MBA would cost in the region of R80,000 versus R10, 000 p/a for a Commerce Master's. In the meantime, the government had been placing more and more emphasis on developing the required skills to drive the economy, specifically

in the Science, Engineering and Accounting fields, with the related decline of enrolment in the Humanities field (Jansen, 2004).

> "It will be difficult to resuscitate the humanities at universities in the coming decades. Senior academics have been lost, powerful intellectual traditions have been terminated, and a culture of critical and creative thought in the social sciences and humanities has been eroded. The decline of the humanities must therefore rank as one of the most important changes in South African higher education over the past decade" (Jansen, 2004:309).

II.3.v Implications for academics

SA has transitioned through a period of apartheid that differentiated education for non-whites. Unfortunately, the pressures to transform the demographics of higher-education in SA have put even more pressure on academics to transform their practices. A lack of training in education has resulted in an emphasis on teaching disciplinary facts and concepts at the expense of learning. Jansen (2004:310) recognises a number of significant implications for academics in Higher Education, post-1994. Following are brief highlights from his research.

- Increased rivalry: Due to the shortage of funding and jobs, academics and institutions strive to attract top (black) academics, and current academics feel a greater need to compete amongst each other for programmes, courses, funds and students.
- Low job security: Due to the drained financial resources, and various rounds of retrenchments, academic tenure is not certain anymore, and job security is at an all-time low.
- Employment equity policies: "Although more psychological than real, such vulnerability is also felt among white academics as the demand for employment equity moves from a polite requirement to a punishable offence in institutions" (Jansen, 2004:310).
- Higher pressure to perform: With greater scrutiny placed on pass rates and research outputs (all income generating activities), and increased application of quality assurance standards and performance management, academics and administrators have increased pressures to perform, merely to retain their jobs or to even be considered for promotion.

- Resource limitations: There is a clear message sent to academics of the limited budgets and resources and declining revenue base of the Universities.
- Greater responsibility towards students: The supply and demand has shifted between universities and students, and students now need to be cared for as clients and resources of the institutions, and Universities have become dependent on high levels of enrolment and throughput.

> "Whether this new culture and context of academic work will be sustainable is unclear, especially in developing countries where changes in political and economic regimes could also change the nature of the academic workplace, again" (Jansen, 2004:210).

Other pressures as a direct demand of policy and attrition are for more academics to gain a PhD. There has also been talk of academics needing to obtain a Post-graduate Diploma in Higher Education in order to teach at University level. This has not yet been implemented. These shifts in the educational sphere have also had a significant impact on the culture of Teaching and Learning in SA. Some of the shifts in Higher education triggered by policy and context changes post-1994 that are of significance particularly for Teaching and Learning are:

- Increasing focus on Vocational Training (Jansen, 2004)
- Breakdown in Teaching and Learning Culture (Herman, 1995)
- Entitlement Culture (Herman, 1995)
- Increasing number of Large Classes (Jawitz, 2013)
- Under-preparedness of first year students
- Higher numbers of English second language students (Bangeni and Kapp, 2007)
- Low level of Academic Literacy with implications for reading and writing, numeracy, digital literacy, Information Literacy, Discourse and language skills (Hurst, 2014)
- Students needing to learn the language of discourse prior to the subject matter (Bangeni and Kapp, 2007; Paxton, 2009)
- Shifts in students' cultural identities (Parkinson and Crouch, 2011)
- Low levels of translation or throughput (Cloete, 2014)
- Qualification Inflation (Gibbs, 2010:38)

Faculty need to acknowledge the differences in curriculum that have been inherited from the apartheid regime, as well as the strengths and abilities of a group of students who had to struggle to get where they are and who finally have access to a system of Higher Education that was formally considered to be the domain of the 'white elite'.

II.3.vi Teaching students how to learn

The modern university is defined either as a teaching university or a research university or as both. The main emphasis in either of these, however, is 'discipline specific knowledge'. Furthermore, research ratings are established by the National Research Foundation (NRF) with the highest ratings going to researchers who "demonstrate[s] leadership in a field and *discipline*"[11]. These ratings are often used in University rankings in order to recognise research excellence and for tenure, promotion and incentives. HEIs offer degrees in specific disciplines and not in general skills. Academics are appointed based on their discipline expertise. In SA, the minimum requirement for academics to teach in higher education is a Master's degree in their discipline[12]. Students are also enrolled in a particular discipline or course.

Teaching students 'How to learn' or ('knowing how' or procedural knowledge) goes beyond the teaching of basic facts and figures ('knowing that' or propositional knowledge) (Hirst, 1973; Ryle, 1949). University teaching has at its disposal a wealth of techniques for teaching the various kinds of knowledge that is required in a discipline. Information Systems is both a theoretical and a practical discipline. The practical aspect emphasizes the teaching of practical skills such as systems analysis, database design, programming and configuring information systems as well as managing IS organisations. These practical skills can be contrasted with the theoretical aspects of the discipline such as how IS originated, IS in business, IS adoption and any of the diverse fields that are related to IS. Praxis education goes beyond teaching the theories and practices of the discipline, to teaching the principles and practices of 'How' to develop such theories and practices for themselves. Teaching of research can thus be either theoretical (teaching of research methods), practical

[11] http://www.nrf.ac.za/sites/default/files/documents/Considerable%20International%20Recognition_Aug%202014.pdf

[12] There are of course other related criteria. At SAU it also includes teaching experience, community service and research outputs but does not include industry experience.

(doing research) or praxis (learning to participate in a community of practice). It is the latter approach that is adopted here.

II.3.vii Research in the UG curriculum

The significance of research in any discipline is undisputed. Research is necessary for maintaining the identity and recognition of a discipline (Galliers, 2003; Hassan, 2010:1); for the growth and development of a set of core properties or nomological nets (Benbasat and Zmud, 2003:186); as a means of communicating its theories and practices (Chan, Guness and Kim, 2014); for the hiring, promotion, tenure and pay scales of academics; as well as being used to rank departments and institutions based on their publication output (Huang and Hsu, 2005; Rainer and Miller, 2005).

> "research and academic teaching are indivisible because—but also only just so long as—they share with the scholarship which should feed into both alike that spirit of active enquiry which is higher education's raison d'etre" (Westergaard, 1991, p. 28 In Brew, 2003:9)

It is not clear why there is limited inclusion of research as a core competency in the undergraduate Computer Science (CS) and Information Systems (IS) curriculum in South Africa (SA) and that it is only at a postgraduate level where research methodology courses gain some traction, where one of the expected outputs of students is a research project or mini-dissertation, although it is considered to be most problematic and needed in the undergraduate curriculum (Jenkins, Healy and Zetter, 2007) where there is limited integration between teaching and research. The trend at higher education institutions is to first introduce students to a research project at Honours or Master's level, however, there is no reason why this cannot be done at an undergraduate level as well. At an undergraduate level in SA, students are, however, required to conduct some aspect of research, comprising mainly literature reviews on specific topics in IS, yet there is limited evidence that these assignments are introduced in a structured manner in order to develop the research capabilities of undergraduate students, especially in subjects or disciplines that do not specifically target academic literacy.

> "... research and academic teaching are indivisible because—but also only just so long as—they share with the scholarship which should feed into both alike that spirit of active enquiry which is higher education's raison d'être" (Westergaard, 1991:28, in Brew, 2003:9).

It has also become important to connect IS students with the future of research, for academics to conduct research, supervise students, teach research, research their teaching and for creating and enhancing a research culture in tertiary institutions (Kroeze, Pretorius and Roode, 2010; Roode, 1993). Therefore, it is not clear why, despite the importance of IS research in the discipline, there is limited inclusion of research as a core competency in the model curriculum (Gorgone et al., 2002; Topi et al., 2010)[x]. Some authors have attempted to address the research requirements in the IS curriculum in terms of collaborative workplace skills, yet this has not found its way to the model IS 2010 curriculum.

The result of this lack of research in the undergraduate curriculum has a direct influence on the under-preparedness of postgraduate students in SA (Mouton, 2007; Sayed, Kruss and Badat, 1998). Despite this need for research skills, it is mostly lacking at an undergraduate level (Wood, 2009:116). Instead of postponing research projects to postgraduate studies, research skills can be introduced in the undergraduate curriculum (Mustafa, 2004:35), a practice that has successfully been achieved in IS (Davidson, 2011; Elsen et al., 2009; Salsman et al., 2013:206) and other disciplines such as humanities and maths and science (Kroeze, Pretorius and Roode, 2010).

II.3.viii Research in the UG IS curriculum

There appears to be general agreement amongst CS and IS curriculum developers that research does not belong in the UG curriculum based on the latest curricula (Topi et al., 2010; Computer Science Curricula 2013: Curriculum Guidelines for Undergraduate Degree Programs in Computer Science, 2013) as well as actual curricula from CS & IS departments at the top ten teaching universities in SA.

> "as an academic community, we have only, on rare occasions, considered explicitly the relevance of *IS research* to students (Gill and Bhattacherjee, 2009; Klein and Rowe, 2008) and even more rarely, to undergraduate students" (Davidson, 2011:134).

The IS 2002 curriculum indicates a number of analytical and critical thinking skills that undergraduates need to possess (Gorgone et al., 2002) but does not directly address research as a necessary skill for industry preparation or postgraduate research. Some authors have attempted to address the lack of RUGC (research in the undergraduate curriculum) in IS in terms of collaborative workplace skills (Lynch, 2009:566), yet this has not found its way into the model IS 2010 undergraduate

curriculum. The 2012 ACM CS curriculum recommends independent and group research projects, research on topics such as the application of computing to environmental issues, emerging technologies, artificial intelligence, and presenting, evaluating and critiquing of research papers. Although the CS curriculum does not include a formal research module, research seems to be mainly included in professional development seminars and student-faculty research projects that contribute a fixed percentage to their grade. Research does not however gain any traction in the UG CS curriculum, even as an elective subject where *"'Reading', 'Research', and 'Thesis' courses do not normally satisfy the elective requirement"* for a CS major (Computer Science Curricula 2013: Curriculum Guidelines for Undergraduate Degree Programs in Computer Science, 2013:503).

Surveying the top ten teaching HEI's in South Africa[13], there appears to be a distinct lack of research and/or related modules in the UG curriculum as can be seen in the table below[14].

Table II.1 Research modules in the U/G CS and IS curriculum in SA

Ranking	Institution	Department/ Programme	Research Module
1	University of Cape Town	IS	None.
		CS	Independent research in CS (Y2). For academically strong students only.
2	University of the Witwatersrand	IS	None.
		CS	None.
3	University of Pretoria	IT	None. Academic Literacy for IT (Y1)
		CS	None.
4	Stellenbosch University	IS	None.
		Information Science IS Management	None. Business Communication (Y1).
5	University of Johannesburg	CS and Informatics	None. Language and Skills for Science (Y1)
		Information Technology (IT)	None. Adapting to Science in Higher Education (Y1) Plagiarism and Copyright (Y1)
6	University of Kwa-Zulu Natal	IS&T	None. IS&T Professional Skills. IS&T Communication Skills (Pre-2016)

[13] From https://www.topuniversities.com/university-rankings-articles/brics-rankings/top-10-universities-south-africa-2018

[14] Derived from the respective Faculties' course guides. NWU has three CS/IS departments across three campuses namely CS in Potchefstroom, CS & IS at Mahikeng and IT at Vanderbijlpark.

Ranking	Institution	Department/ Programme	Research Module
		CS CS and IT	None
7	Rhodes University	IS	None.
		CS	None.
8	University of the Western Cape	IS	Academic Literacy for Commerce (Y1). Research Methods and Philosophy (Y3)
		CS	None
9	Free-State University	CS and Informatics	None.
10	North-West University	IS	None
		CS	None. Communication Skills (Y3)
		IT	None.

From the analysis it appears as if only two of the universities in South Africa offer a course in UG research at the time of this survey (2017). UWC's IS department offers a third-year course in research methods and philosophy and UCT's CS department a 2nd year course in "Independent research in CS" which is offered to academically strong students only. University of Johannesburg offers a first-year course on language and skills for science, whereas Stellenbosch and NWU has a module on business communication skills and UKZN has a course on IS & Technology Professional Skills.

Paradoxically, faculty shy away from introducing RUGC due to perceptions of increased workload, lack of recognition for UG research mentoring, lack of knowledge in the areas that the students research, and/or lack of knowledge on how to teach research (Barker, 2009). Some of the benefits of introducing RUGC are that it improves student retention, i.e. students continue on to postgraduate studies without fear of struggling with research, they learn to work independently and in a team, and it boosts their confidence in gaining new knowledge and skills that are required in industry and academia, and provides them with a broader view of the discipline (Barker, 2009). Faculty also see research experiences at an UG level as predominantly positive, especially in terms of the students' personal development and their subsequent continuance in PG studies. Another aspect that justifies introducing RUGC, is the transitioning of HEIs from teaching-led to research-based institutions. This new direction for primarily teaching-led institutions requires academics to connect IS students with the future of research, for academics to conduct research, supervise students, teach research, research their teaching, and create and enhance a

research culture in their departments and institutions (Kroeze, Pretorius and Roode, 2010:2).

> *"institutional and practical barriers are high to involving undergraduates in IS research"* (Davidson, 2011:135)

It is suggested that the teaching of research requires a different approach to teaching than that of teaching subject knowledge expertise and this lack of knowledge on how to teach research is what keeps academics away from introducing RUGC.

II.3.ix Research at SAU

At South African Universities there is still a divide between teaching and research, despite the active encouragement of universities to be research institutions in SA (Holtman and Mukwada, 2014; Kamler and Thomson, 2014; Sayed, Kruss and Badat, 1998). SAU has openly proclaimed its transitioning to a research institution (SAU Strategic Plan 2010-2015 Action Plan, 2015), with clear policy support in its Institutional Operating Plan [IOP], Teaching and Learning strategies (Bozalek, 2010) to support and encourage a research culture.

These strategies are further encouraged in the Teaching Portfolio (Teaching Portfolio at SAU, 2010:4) that specifies "reviewing the extent that an inquiry-based approach has been implemented" (6.6) "attempts to include research methodologies for undergraduate students in the curriculum", and (6.7) "participation by students in publishing and presenting papers at national and international conferences". Further support is provided in terms of the faculty's graduate attributes. All indications are there that the institute, the faculty, teaching and learning directorate as well as departments strongly encourage the conducting and teaching of research at the institution.

In the IS curriculum at SAU, there is a dedicated research methods and philosophy module at a third-year level in IS (IFS352 Research Methods and Philosophy). Furthermore, the Faculty has a specific first year module dedicated to the development of academic literacy for commerce (ALC) that focuses on the development of academic reading and writing and critical thinking skills.

II.3.x Research Pedagogy

Research pedagogy[15] is a practice in Higher Education that is still in its infancy, with few institutions in SA establishing the role of a research professor in IS (Cloete, Mouton and Sheppard, 2015). The literature suggests five major discourses on research pedagogy, namely research supervision (Denham, 1997; Kirk and Kolevzon, 1978; Waite, 2013), teaching research methods (Baldwin, 2005; Elsen et al., 2009; Jenkins, Healy and Zetter, 2007; Trowler and Wareham, 2007), teaching/research nexus (Epstein, 1981; Kane and Fichman, 2009; Moody and Buist, 1999), research practice (Carder, Willingham and Bibb, 2001; Doherty, Hansen and Kaya, 1999; Leckie and Fullerton, 1999), and research support such as information literacy (Clarence, 2011; Hutchings, 2006; Rødnes, 2012) and writing skills (Rakrouki et al., 2017) each with their own areas of specialization, practices and challenges. The approach adopted in this dissertation has more synergy with the teaching-research nexus than any others, although the boundaries between the approaches are blurred. These aspects will be examined in greater detail in Chapter IV Learning how to teach students to do research.

II.3.xi Teaching research in IS

There are some examples in the literature of introducing research in the undergraduate (RUGC) IS curriculum. One of the earliest studies to report on RUGC in CS/IS is Selin (1988) who emphasises that *"research skills need to be seen as integral to the acquisition of knowledge and the habits of mind central to the academic purposes of undergraduate education"*.

Davidson (2011) suggests that IS as a discipline needs to promote RUGC through their own professional associations such as the Association of Information Systems (AIS), share experiences of teaching research at an UG level through conferences and professional publications as well as learn from other fields such as natural and CSs and engineering that are engaged in undergraduate research. At a university or at institutional level, academics need to work with student chapters of professional associations to develop RUG, increase participation of UG students in IS projects, target shorter and smaller courses for research (knowledge discovery) as opposed to

[15] For want of a better word, the term *research pedagogy* is used to indicate the supervision, teaching, mentoring and facilitating of research aspects in tertiary education.

teaching (knowledge transfer) or employee readiness. At a course level, faculty are encouraged to bring their own research into the classroom, encourage alternative genres for dissemination of research and engage UG students in local research projects that are of interest to students, such as social networking or online gaming.

An important development in CS for RUG was the establishment of a birds-of-a-feather (BOF) in the Special Interest Group in CS Education (SIGCSE) targeting Research Experience for Undergraduates (REU) circa 2006 (Holz et al., 2006). This provided a platform for discussions on the introduction of UG research experiences in the CS curriculum that has paid dividends over the years in terms of a number of initiatives and publications that resulted from it (Holz, Applin and Joel, 2007; Holz et al., 2006; Rahman et al., 2017b; Rahman et al., 2017a; Wenderholm, 2004). Unfortunately, this impetus was not translated into the formal CS curriculum as was reported earlier. Further support from national organisations in the United States (US) such as the 'Council of Undergraduate Research' and 'National Science Foundation's' Undergraduate Research programs also encourage and provide funds and resources for HEI's to conduct RUG (Barker, 2009).

Howerton (1991) does not see much difference between RUGC and the P/G curriculum except in terms of funding or motivation because research and funding programs are mainly directed at P/G studies. UG students can be differentiated as primary researchers, research assistants, research aids, and active or passive subjects of research (Howerton, 1991).

II.4 Chapter summary

In this Chapter, I have presented a broad review of the literature on the historical context of teaching and learning in HEI's and the dialectical tensions between disciplinary education and the disciplines of teaching and learning in South Africa. This occurs in a system that emphasises free access to higher education, reduced entrance requirements, poor maths and science marks at school, limited funding and pressures on academics to graduate greater numbers of students in order to generate more fees.

This changes the role of the University as a place of teaching universal knowledge to a place of vocational training in a specific discipline. Educators are hired based on disciplinary expertise and not on their teaching expertise. Students are

admitted based on pre-defined subjects with ever decreasing entrance requirements in South Africa and not on their abilities to think, reason and learn for themselves. This puts greater strain on an already overloaded system of higher education, where open admission policies and increasing demands for free education and lowering of standards leave untrained academics with limited training to fall back on, and defences of merely "getting students through the system" by teaching to the test or curriculum requirements.

This volatile situation is further exacerbated by political and governing bodies demanding stricter compliance with standardised curriculum and industry compliance at the loss of freedom to educate students in a way that is best suited to their current needs and interests. One of the ways in which students can be led from an oppressive system of education to an empowering education is by teaching them to research and inquire for themselves. Unfortunately, inquiry-based learning, which stood at the core of the peripatetic curriculum, has been de-emphasised in the modern curriculum, and the teaching and learning of core theories and principles in a discipline has moved to centre stage.

Modern universities in SA tend to emphasise the teaching aspect of a discipline, rather than the learning aspect for a student. Research and research skills in the IS curriculum are all but absent at an undergraduate level and only two Universities in SA offer any form of training in research and research methods. In the undergraduate Information Systems curriculum, research is mentioned peripherally, and out of the top ten teaching HEIs in SA, research is only included in the UG curriculum of two universities.

Cases of teaching research in IS are well documented yet emphasise the research process rather than the development of learners to direct their own learning. Introducing research in IS points to a more active approach to learning how to research. A culture of learning is not considered central to the discipline anymore, and research is considered to be an advanced skill that is mostly introduced at a postgraduate level, resulting in students that are ill equipped to conduct research. This thesis calls for a Research-based approach to learning that is significantly different from the contemporary banking approach and warrants further exploration of methods of teaching students to do research. It is this approach that will be examined further in this dissertation

II.4.i Conclusion

This chapter highlights the changing role of Universities from places of learning to places of vocational training, in which increasing pressures of preparing students for the workplace have resulted in an emphasis on disciplinary expertise at the expense of learning how to learn. In this chapter, I explored how this has resulted in a lack of processes of learning and inquiry in HEI in SA and, more specifically, as a lack of developing research competencies amongst IS students. This dearth of research in the U/G curriculum is also exemplified in the lack of exemplary cases of teaching students to research in IS in SA. It is this aspect that will be advanced in the next chapter in exploring the literature on teaching students how to learn and do research of their own, i.e. transitioning them from knowledge consumers to knowledge producers.

> "But curriculum is, by any definition, much more than content. It is about the critical engagement with knowledge between teachers and students. As a transactional event, the curriculum is *what* is taught but more importantly *what* is learnt and the *consequences* of that knowledge for personal and social change."
>
> (Jansen, 2017:12)

Chapter III Teaching students how to learn

> "One of the longer-term aims of (adult) education is usually to help learners to internalize, take over and own some of the functions of the teacher, so that they literally become self-teachers. That idea lies at the heart of the concept of the autonomous, lifelong learner" (Kitchenham, 2008; Mezirow, 1990; Mezirow, 1991).

STUDENTS in their third year of University can be considered to be adults[16] and therefore need to be taught in a different way than children (Squires, 1999:30). One of the primary differences emphasised by adult education is the development of autonomous self-directed lifelong learners.

III.1 Introduction

Having demonstrated the shift in higher education from learning to teaching in the previous chapter, the loss of learning and research as a core competency in undergraduate higher education in general and in the undergraduate IS discipline in particular, I continue in this chapter to explore active learning approaches in the curriculum that move away from the banking system of education and put the learner at the centre of teaching/learning activities. This chapter also furthers the understanding on the literature surrounding self-directed learning and how this concept in the context of experiential learning can advance answering my fifth research question of teaching students how to teach themselves, i.e. how to learn. A clue to answering this question lies with my second research question on how to develop critically reflective students, a matter which I explore in greater depth at the end of this chapter.

III.2 Approaches to learning

Teaching students how to learn to do research in IS has implications for increasing student control in the curriculum (Goode et al., 2007), such as in student-led learning (Shephard et al., 2017), as well as students taking ownership of their own learning, such as in adult education (Knowles, Holton and Swanson, 2015) or self-directed

[16] Darkenwald and Merriam (1982) are still of the opinion (as are most professors) that full-time students are not adults (yet)...neither are they children anymore.

learning (Grow, 1991). Incorporating research in the UG curriculum, requires alternative approaches to conceptualising the curriculum than traditional instructor-led approaches (Natsis, Papadopoulos and Obwegeser, 2018). There are many views on 'how we learn'. These can be conceptualised in terms of learning theories. This section will review some of the key learning theories and highlight the approaches of situated student-led learning in the context of adult self-directed learning towards an epistemology of teaching students to learn for themselves.

III.2.i Theories of learning

Learning theories are important in higher education as they both formalise teaching practices by providing a conceptual framework on how students learn and inform teaching practices on how to structure learning environments (Cattafi and Metzner, 2007:20). Learning theories come from fundamental epistemological questions such as where knowledge comes from and how we know (Hofer and Pintrich, 1997; Moser, 2002). Empiricism is based on Aristotle's philosophies of knowledge and states that knowledge is obtained through direct sensory experience and is incremental (Ertmer and Newby, 1993:47). Rationalism is based on Plato's philosophy that knowledge is derived from reason without the aid of one's senses and that humans learn by recalling what essentially already exists in one's mind (Ertmer and Newby, 1993:47).

The three primary learning theories are behaviourism, cognitivism and constructivism (Ertmer and Newby, 1993). To these three have been added experientialism, humanism, pragmatism, social learning theory, connectivism and sensory theory (Gravells and Simpson, 2014).

Behaviourism is based on the premise that learning can be assessed by observable and measurable change in behaviour in students. It is founded on Pavlov's studies of behaviour reinforcement and shows that learning is enhanced by feedback; learners can monitor their progress until their behaviour is deemed to be correct (Ertmer and Newby, 1993). Its primary instructional design emphasises the arranging of a conducive learning environment (stimulus) with associated consequences (rewards). A modern form of behaviourism is gamification (Kapp, 2014), where end-users are motivated to achieve levels of participation by rewarding them with tokens of achievement.

Cognitivism marked a shift in learning theories from observable behaviour (behaviourism) to complex cognitive processes such as "thinking, problem solving,

language, concept formation and information processing" (Snelbecker in Ertmer and Newby, 1993:50). It places greater emphasis on knowledge acquisition and the development of mental structures and focuses on how information is transmitted, received, organised, stored and retrieved by the mind. The primary activity by the learner is cognitive (mental). The goal of instructional design is the most efficient transfer of knowledge to the learner, and the primary means of evaluating such transfer is through tests of memory and application. Feedback is used to guide accurate mental constructions by the learner (Ertmer and Newby, 1993). Learner activity is evaluated by the learner's activity in the knowledge acquisition process in terms of outlining, summarising, reorganising and mastering of concepts. Learning environments foster connections with prior knowledge (recall) by means of relevant revisionary strategies, examples and analogies. Strategies include making learning more meaningful or relevant to learners so that they can relate new knowledge to pre-existing concepts (Ertmer and Newby, 1993). Cognitivism both developed concurrently to the computer and leans on computer processing principles of input, process and output of knowledge (Gravells and Simpson, 2014), a view that has much to do with the modern critique of 'banking education' (Freire, 2005)

Constructivism extends behaviourism and cognitivism by critiquing the objectivism of both and recognising that humans create meaning (knowledge) from their experiences (behaviour). This perspective integrates the rationalist view with the empiricist perspective. Constructivism considers knowledge as subjective and emerging in context, and therefore the learner's knowledge and the environment are both important. Any new experience or knowledge is interpreted through past experiences and knowledge. Knowledge is not static but re-constructed with each new experience. Situations are presented that provide learners with new learning opportunities rather than retrieving of inert knowledge. The focus must be on developing (cognitive) tools that enables learning. Activity (practice), concepts (content) and culture (context) are all essential components in a constructivist environment (Brown, Collins and Duguid, 1989). It is suggested that constructionist environments are better suited to advanced learning where complex ill-structured domains require novel learning strategies (Jonassen, 1991). Instructional design should emphasise environments where learners can explore these complex problems in domains that experts operate in (Ertmer and Newby, 1993:57). Some of the learning approaches that can be used to advance constructionism are situated learning,

cognitive apprenticeships, collaborative learning, social negotiation, case studies and the development of reflective awareness (Ertmer and Newby, 1993:58). Constructivist learner strategies should emphasise the context of learning, transfer control of learning to the learner (student-led learning), present information in different ways, support problem-solving activities (problem-based learning) that go beyond textbook knowledge, and assess students abilities to transfer knowledge i.e. apply their learning to new and different contexts (Ertmer and Newby, 1993:58). The role of instruction is to facilitate the construction of new knowledge by experience, and not the assimilation of pre-existing knowledge. Social Learning Theory formalises constructivism based on the premise that learning progresses through four stages namely observation (environmental), retention (cognitive), reproduction (cognitive) and motivation (Bandura, 1969). Social learning theories acknowledge the contextual aspects of learning and is also expressed in competing learning theories such as sensory learning theory (Laird, 1985; Piaget and Inhelder, 1958), situated cognition (Brown, Collins and Duguid, 1989), situated learning (Lave and Wenger, 1991), experiential learning (Kolb, 1984), pragmatism (Dewey, 1933) and communities of practice (Farnsworth, Kleanthous and Wenger-Trayner, 2016).

Humanism is another learning theory that recognises the role of learners and their inherent need to learn and develop as a person is central to the learning process. (Rogers, 1969). Humanism finds its philosophical roots in anthropocentric philosophies of Aristotle and Socrates and is extended in the philosophical works of St Augustine and Aquinas (Huitt, 2009). It is a philosophy that relies primarily on "reason and science, democracy and human compassion" (Huitt, 2009). This approach stands in stark contrast to behaviourism where learning is deemed to be as a result of conditioning, and that of cognitivism where the acquisition and processing of knowledge is central to learning (Huitt, 2009). The primary aim of humanism is the development of a self-actualised and autonomous person. Learning is student-centred and personalised; the emphasis is on affective and cognitive needs and the role of the educator is that of facilitator or counsellor (David, 2015). There are five basic tenets of humanist education, including "Promotes positive self-direction and independence", "develops leaners abilities to take responsibility for their learning", develops creativity and curiosity, and "emphasises the artistic/aesthetic and affective/emotional development". The principles that humanism subscribe to are that "students will learn best what they need to know", "knowing how to learn is more important than what to

learn", "self-evaluation is the only meaningful form of evaluation", "feelings are as important as facts" and "students learn best in a non-threatening environment" (Gage and Berliner., 1992). Some strategies for implementing a humanistic approach in the classroom are to "allow students a greater choice in the selection of tasks and activities", "help them set realistic goals", "implement groupwork (co-operative learning) in order to foster social and affective skills", "act as a facilitator for groupwork", "be a role-model for the attitudes, beliefs and habits you wish to foster" (Huitt, 2009).

Connectivism is a modern learning theory that advocates that the internet (including modern ICT's) has brought about new opportunities for learning that 20th century learning theories could not have envisaged (Siemens, 2005). Connectivism sees knowledge (sharing) and learning as distributed across a network of connections (Siemens, 2005) "and therefore that learning consists of the ability to construct and traverse those networks" (Downes, 2012:9). Connectivism contends that learning comprises the arrangement of patterns or pieces of thought, in a sequence in order to match specific outcomes. Much like mentally constructing a set of moves in a game of chess. It also recognises that "the learning process is cyclical in that learners will connect to a network to share and find new information, will modify their beliefs on the basis of new learning, and will then connect to a network to share these realizations and find new information once more" (Kop and Hill, 2008:2). Like constructivism, connectivism situates learning (and information) in a community (node) of practice and does not see knowledge as a 'thing' to be acquired. In this way, knowledge is distributed across the network. Connectivism emphasises two additional concepts over constructivism in that learners require the ability to find and filter out irrelevant information. Teaching in a connected environment situates the learner at the centre of the learning experience, much like humanism. Technology allows the learner to make multiple connections outside the classroom, and teaching strategies need to empower the learner to develop their own skills in making these connections. Ultimately the learner should be able to move beyond the formal learning environment (in a self-directed manner) in order to pursue their own personal interests and preferences (Kop and Hill, 2008:9). Connectivism should not be confused with technology-based learning or e-learning or mobile-learning (Livingstone, 2015; Mlitwa, 2007; Sharples, Taylor and Vavoula, 2007). Yet a lack of resources, limited access to technology for teaching, limited 'success' stories and a lack of trained and motivated educators limit

the implementation of connectivism in an African Higher Education context (Kizito, 2016). Siemens (2005:4) outlines eight tenets of connectivism namely 1. "learning and knowledge rest in a diversity of opinions", 2. "learning is a process of connecting specialised information sources (nodes)", 3. "learning may reside in non-human appliances", 4. "capacity to know is more important than current knowledge", 5. "nurturing and maintaining connections is needed to facilitate continual learning", 6. "ability to see connections between fields, ideas, and concepts is a core skill" 7. "currency (accurate, up-to-date knowledge) is the intent of all connectivist learning activities" 8. "decision-making is itself a learning process".

III.2.ii Situated Learning

Situated learning is a theory of learning based on constructivism, that all learning and knowledge is socially constructed as a result of our activities in a community of practice. Other terms that are used to refer to situated learning are situated cognition, cognitive apprenticeship and legitimate peripheral participation (Hendricks, 2001).

> "Situated learning is the study of how human knowledge develops in the course of activity, and especially how people create and interpret descriptions (representations) of what they are doing." (Clancey, 1995:49).

Situated learning advances the view that knowledge is "integrated with the individual's identity and participation", "constitutes an evolving membership" in a community of practice, and embodies the "means of reproduction and development" of such a community of practice (Clancey, 1995:55). This view considers learning as a social process as opposed to the general perspective that knowledge is a set of facts or collection of rules that needs be taught or learned (Clancey, 1995). Situated learning has its theoretical origins in the 'sociology of knowledge' of Marx, Durkheim and Mannheim, functionalism of Dewey and Bartlett, Activity Theory of Vygotsky and Cole, Cybernetics and Systems Theory of Bateson and von Foerster, ethnomethodology of Garfinkel, and Ecological Psychology of Gibson, Jenkins, Bransford, Neisser and Barker (Clancey, 1995:55).

Situated Learning as a teaching approach has its roots in the works of Lave and Wenger (1991) who claim that students learn better by actively participating in the learning experience and that learning can be better transferred to other contexts. These can be provided by field-trips, internships, practice that replicates actual settings, or laboratories that model real-world settings (Situated Learning, 2007).

Classroom activities are guided by the principles that 1. Knowledge is grounded in everyday actions, 2. knowledge is acquired situationally, 3. learning is a social process of thinking, perceiving, problem-solving and interaction in addition to procedural and declarative knowledge, and 4. learning takes place in a social environment made up of actors, actions and situations (Stein, 1998).

In order to strengthen situated learning in the classroom, teachers need to 1. "select situations that will engage the learner in complex, realistic, problem-centred activities that will support the desired knowledge to be acquired", 2. "scaffold learning" so that novices and experts can work together, 3. gradually withdraw teaching support by "facilitating learning" and "encouraging reflection" so that learners can become more aware of their own context, 4. continuously assess the intellectual growth of the learner (Young, 1993). More significantly, student learning in realistic contexts makes the knowledge that is acquired more meaningful to students (Young, 1993:57).

III.2.iii Student-led learning

One approach that emphasises the student's role in learning is referred to as student-led learning (SLL). SLL can also be referred to as learner-centred teaching (Fahraeus, 2013) or flipped classroom (Mok, 2014). In a teaching-centred paradigm, curriculum and the delivery of lectures determine what students do. In a SLL approach, students' interests and capabilities determine what is done in the course, and the process of learning is emphasised (Saulnier et al., 2008).

> "Student-led teaching and learning is an innovative form of active learning that empowers students with direct ownership of the learning experience" (Marvell et al., 2013).

Summerhill school is an example of student-led learning (Summerhill - An Overview, 2018). It was founded in 1921 near Suffolk on the east coast of England, based on the philosophy of its founder A.S. Neill that children's freedom to determine their own education is paramount. Children are free to enrol in any course they choose, up to GCSE level and timetables are determined once students are registered for a course. There is free access to art, woodwork and computers and the 12 acres of grounds allow much room for students to play.

Fundamentally, in a student-led approach, students take greater responsibility for their own learning environment by means of researching their own topics,

discussion groups, presentations to peers, greater inputs into class times and means of assessment (Goode et al., 2007). SLL has numerous benefits such as providing greater autonomy, greater responsibility, increases student engagement, develops leadership abilities, and greater freedom to express themselves tan traditional instructor-led education (Marvell et al., 2013; Shephard et al., 2017). Students are involved in greater degrees in the organising and delivery of the course in the context of boundaries and assessment practices that are set by the educator (Marvell et al., 2013).

III.2.iv Adult Learning

One of my research questions (Q6) examines whether students could teach themselves to learn or become self-directed. Therefore, it aims to test two basic assumptions, i.e. students' self-directedness, as well as the assumption that they learn from and by experience. In order to examine how students could teach themselves to learn from experience (Q6) and lecturers learn how to teach students on how to learn (Q1), it may thus be important to evaluate how educators can develop student's internal capacity for learning. This concept is articulated in the theories of adult education (andragogy); where adults are encouraged to take greater responsibilities for their learning than accorded to children (Taylor and Kroth, 2009:6).

> "Andragogy is an organized and sustained effort to assist adults to learn in a way that enhances their capacity to function as self-directed learners" (Mezirow, 1981:21).

The most important difference between andragogy and pedagogy is that adults have developed the capacity to learn from their own experiences as opposed to learning from others' experiences and knowledge (Lindeman, 1926:6 in Taylor and Kroth, 2009:8). Key principles of adult learning are that it is experiential (McGrath, 2009; Merriam, 2001), self-directed (Bok and McKeithan, 2005), critical/reflective (Mezirow, 1981; Wilson and Kiely, 2002), lifelong (Mezirow, 1991) and transformative (Dirkx, 1998; Mezirow, 1997; Saddington, 2000). The main differences between andragogy and pedagogy were specified by Knowles (1980) and are summarised in Table III.1 below.

Table III.1 Assumptions of Andragogy (Knowles (1980) in Taylor and Kroth, 2009)

#	Assumption	Pedagogy	Andragogy	Assessment
1	**Self-concept**	Dependent	Self-Directed	"Adults tend to resist situations in which they feel that others are imposing their wills on them".
2	**Experience**	Limited	Vast	"If those prior experiences can be used, they become the richest resource available".
3	**Readiness to learn**	Determined by Social-environment	Determined by Social role	"Readiness to learn is dependent on an appreciation of the relevancy of the topic to the student".
4	**Orientation to learn**	Subject-centred	Problem-centred	"Adults are motivated to learn to the extent in which they perceive that the knowledge in which they are acquiring will help them perform a task or solve a problem that they may be facing in real life".
5	**Motivation to learn**	External (Punishment/ reward) Pleasing others	Internal (desire/aversion) Self-esteem, goal attainment	"They are mostly driven by internal motivation and the desire for self-esteem and goal attainment".
6	**The need to know**	Obey first, ask questions later (authority)	Questions first (the reason)	"The first task of the teacher is to help the learner become aware of the need to know". "When adults undertake learning something they deem valuable, they will invest a considerable amount of resources" (e.g., time and energy).

In adult learning, students move from dependency to independence in learning, and the relevance of learning is determined by their interest in the topic and not that of the educator. This interest is driven by very personal needs to solve a particular life problem and they are motivated by intrinsic reasons. The role of the educator in andragogy is to help learners to explore these very personal needs in the context of the curriculum. The problem with the concept of andragogy is that many of these 'assumptions' about how adults learn remain untested to this day (Merriam, Caffarella and Baumgartner, 2007; Taylor and Kroth, 2009) mainly due to the lack of a reliable measuring instruments as well as suitable empirical studies.

> "We cannot say, with any confidence, that andragogy has been tested and found to be, as so many have hoped, either the basis for a theory of adult learning or a unifying concept for adult education." (Cross, 1981:228).

Taylor and Kroth (2009:7) identify four major obstacles that may limit the value of andragogy as a valid way to teach adults. These can be summarised as follows:

1. Andragogy could be a 'theory', a 'method', a 'framework, a 'technique' or a 'set of assumptions' or 'principles', or 'descriptions' of an adult learner.

2. There are no clear procedures that constitute andragogical practice.
3. There are no defined means to measure andragogical 'effectiveness' other than the traditional 'tests' and 'grades' which are in conflict with the principles of andragogy.
4. The extent to which these assumptions are applicable to adults only.

Much research is still required in andragogy to answer these assumptions. This thesis aims to contextualise these principles in the context of developing self-directed learners in a research course in IS.

III.2.v Lifelong learning

One of the outcomes of developing self-directed learners is the transition to lifelong learning. Lifelong learning is seen as a philosophy of learning where learners take control of their own learning over their lifetime (Mocker and Spear, 1983:1). Essentially it means that the learner "learns how to learn" (Garrison, 1997). This implies that learners need to take control not only of 'what' they learn, but also 'how' they learn it (Mocker and Spear, 1983:1). Furthermore, learners can determine 'where' or 'when' they need to learn it. Formal environments such as educational institutions determine what and how learners learn, however each learner still has the choice to enrol for a specific degree or course. The second source of learning is non-formal courses or programs. Learners decide what they want to learn, but the how is determined by the facilitator. With informal learning, learners learn from others (experts or friends); i.e. they determine how to learn. The fourth style of self-regulated learning is self-directed, where learners determine both what and how they want to learn.

III.2.vi Self-Directed learning

The aim of adult education is to transfer responsibility from the teacher to the student (Brockett and Hiemstra, 1991; Mezirow, 1981; Millar and Saddington, 1993; Rogers, 1969). This process is also referred to as self-directed learning (SDL)[xi]. Knowles (1975, 18) defines SDL as

> "*a process by which individuals take the initiative, with or without the assistance of others, in diagnosing their learning needs, formulating learning goals, identify human and material resources for learning, choosing and*

implement appropriate learning strategies, and evaluating learning outcomes" (Knowles, 1975:18).

Essentially, learners become able or capable of directing their own learning without the aid of the educator, through a process of transferring responsibility for learning by the educator (Kitchenham, 2008).

> "While andragogy identified assumptions or characteristics of adult learners, self-directed learning is more about the process involved when adults engage in their own learning" (Reis, 2014).

The problem is that SDL is that education institutions with 'formal' structures of directing learning would be an unlikely place to find the fostering of SDL and that SDL is seen as the auspices of 'real-world' environments (Millar and Saddington, 1993:29). As this thesis relates to teaching students to become self-directed, it is important to understand how it could be possible for such a 'transfer' of responsibility to occur in an environment that is hostile to it. Mezirow (in Millar and Saddington, 1993:29) provides some guidelines for implementing SDL in the classroom:

- "Decreasing the learner's dependency on the educator"
- "Assisting learners to assume increasing responsibility for defining their own leaning objectives and planning their own learning program"
- "Fostering a self-corrective reflexive approach to learning"
- "Facilitating problem-posing and problem solving"

Moreover, according to Reis (2014), "Learners come to SDL with different needs and capabilities, making facilitating it as demanding as - if not more demanding than - traditional teaching".

III.2.vii Facilitating Self-directed learning

Knowles (1975) and Reis (2014) highlight a six-step process for facilitating SDL in the classroom, namely "1. climate setting i.e. creating an atmosphere of mutual respect and support; 2. diagnosing learning needs; 3. formulating learning goals; 4. identifying human and material resources for learning; 5. choosing and implementing appropriate learning strategies; and 6. evaluating learning outcomes".

Millar and Saddington (1993:29) present an exemplary case of such a process in practice. For them, 'learning' is taught through the development of *discursive capacity* – through the development of language, role and identity" (Millar and Saddington,

1993:28). This has much in keeping with Freire's principles of Conscientization (Freire, 1970b) and Habermas's communicative action (Habermas, 1983) and is diametrically opposed to the classical 'content' or 'banking' education concept where learning tends to be by instruction and rote memorisation. All active teaching occurs by means of dialogue (talking) and actions, and all learning occurs by means of listening and activities. There is no other way of teaching or learning, regardless of the discipline or field. The emphasis of SDL is thus on who does the teaching and who does the learning. Millar and Saddington (1993) suggests the following:

> "You construct a *sustained* and *varied* task through which all students' intuitive capacity to perceive and interpret processes that constitute learning in themselves and in others is contested, stretched and formally articulated" (Millar and Saddington, 1993:34).

In the process, Miller and Saddington (1993) arrived at a curriculum that they found valuable in fostering SDL:

1. Required reading: 'Key texts' need to provide a basis for students to explore their own conceptions of learning as well as frameworks for constructing such learning.
2. Required tasks: Tasks need to have a clear purpose and goal and be (un-) structured in such a way that requires students to 'grasp in the dark' for solutions.
3. Group work: Group work is central to the success of SDL, and regular changes in groups give learners the chance to experience different 'frames of reference'.
4. Reflection: reflection is essential in instilling an intrinsic learning approach rather than being given material to memorise or learn.
5. Role alternation: Although faculty roles are clear (selecting texts, devising tasks etc.), one of the imperatives is that faculty are primarily co-learners in the process i.e. learning from their learners.

Even though one cannot necessarily isolate each of these key components, they act together to provide educators with the basis on which to teach students to take responsibility for their own learning.

> "The students moved through series of roles. Most entered as typical students waiting for you to deliver the knowledge that you know. They saw themselves as passive consumers of what the staff had to offer. Very quickly the challenge of

> the readings, the tasks and the small group work force them into participating in taking responsibility for the mediation of the own learning – of developing the 'own' theory" (Millar and Saddington, 1993:33).

Millar and Saddington (1993:35) note that in terms of the complexity of such tasks "the bafflement and irritation are not simply permissible but *conditions* of the process of achieving understanding".

> "You cannot learn about learning in the sense of slowly mapping a complex but stable phenomenon. You learn about learning through dispossession – through the enactment of a role of cognitive traveller" (Millar and Saddington, 1993:35).

In the process of developing SDL, students need to learn deal with fears, anxieties, stresses, pressures and develop new skills that no amount of studying of textbooks or theories can accomplish.

III.3 Active learning approaches

If students are to develop the capabilities to learn for themselves, either by experience or research, they need to learn the process in which such knowledge was initially constructed, i.e. in real-world, authentic, problem-based environments. As it is not possible to necessarily take the classroom to practice (i.e. students both doing and learning the process of doing), a number of active learning approaches have been identified, each with their own strengths and weaknesses, that could theoretically be applied in the classroom environment in order to develop self-directed learners.

III.3.iActive learning

Active learning approaches require learners to take an active role in knowledge construction and problem-solving (Grabinger and Dunlap, 1995). Active learning approaches are considered by Schudel (2012:57–61) to be learning strategies that are situated (Lave and Wenger, 1991), action-oriented (Revans, 1982b), deliberative, collaborative (Dillenbourg, 1999:70) and transformative (Mezirow, 1991). 'Active' approaches encourage student responsibility, constructivist learning, authentic contexts, collaborative group work and reflecting on experiences (Grabinger and Dunlap, 1995). Active approaches to learning can be contrasted with 'passive' approaches where the emphasis is on the delivery of decontextualized knowledge. Because students are presented with such de-contextualised knowledge, they see them as facts that need to be memorised as opposed to understanding the processes and

context in which such knowledge has been constructed (Grabinger and Dunlap, 1995:7). This presents a challenge to students in being able to apply such 'inert' knowledge in practice.

III.3.ii Overview of active learning approaches

There are many active learning approaches that are student-centred and foster self-directed learning and reflection. Some examples[17] are blended learning (BLL) (Heinze and Procter, 2004; Manouselis et al., 2011; Nash, 2014), case-based learning (CBL) (Levin, 1995; Ward, 1998), collaborative learning (COL) (Dillenbourg, 1999; Lawrie, Matthews and Gahan, 2010; Mentz and Goosen, 2007; Schultz and Kim, 2008), authentic learning (AUL) (Lombardi, 2007), action learning (ACTL) (Garratt, 2011; Revans, 1982b; Revans, 1991), problem-based learning (PBL) (Bygholm and Buus, 2009; Gijbels et al., 2005; Hmelo-silver, 2004; Norman and Schmidt, 1992; Oliveira, dos Santos and Garcia, 2013), question-based learning (QBL) (Rothstein and Santana, 2017), project-based Learning (PRBL) (Guthrie, 2000; Keegan and Turner, 2001; Licht, 2014), work-integrated learning (WIL) (Riordan, Hine and Smith, 2017; Winberg et al., 2011), inquiry-based learning (IBL) (Aditomo et al., 2013; Brew, 2003; Rakrouki et al., 2017; Spronken-Smith and Walker, 2010) and research-based learning (RBL) (Brew, 2003; Elsen et al., 2009; Lombardi, 2007; Rakrouki et al., 2017; Shaban, Abdulwahed and Younes, 2015; Trowler and Wareham, 2007). Following is a brief overview of these learning approaches.

Lecture-based learning (LBL) is an approach to teaching, also referred to as didactics, where the educator takes most of the responsibility for prescribing reading material, compiling the curriculum, presentations, tests and exams. Students are responsible for attending classes, taking notes, reading the required material, summarising the material, studying and writing tests and exams (Saville and Zinn, 2011).

Blended learning (BLL) is an approach to enhancing LBL through the use of technologies (ICT). Other terms that are used for blended learning are technology-enabled learning (Manouselis et al., 2011), digital learning (Suhonen and Sutinen, 2006), e-Learning (Laurillard, 2006), hybrid learning (Linder, 2017), networked

[17] This summary does not claim to be comprehensive, and does not include some modern approaches to teaching IS such as game-based learning (Kapp, 2014; Perrotta and Houghton, n.d.) and expeditionary learning (Abrahams and Singh, 2013) as these were not directly used in this thesis.

learning (Nordquist and Laing, 2015; Ravenscroft, 2011), blended learning (Sriarunrasmee, Techataweewan and Mebusaya, 2015), virtual learning (Foo and Hussain, 2010) and even online learning (Lebeničnik, Pitt and Starčič, 2015).

Case-based learning (CBL) is an active learning approach that has a rich history in the legal, medical, business and IS fields and promotes active and collaborative learning in the classroom (Ward, 1998). Cases can be seen as "knowledge of specific, well-documented and richly described events" (Shulman in Merseth, 1996:723). The purpose of CBL is to provide students with individual cases in order to generalise particular decisions into general legal principles (Merseth, 1991). The roots of case-based reasoning lie with the practices of the casuists in the middle ages (Jonsen and Toulmin, 1988).

Collaborative learning (COL) is another active learning approach that encourages interaction amongst participants in order for them to learn from or with each other. In its broadest sense it refers to "a situation where two or more people learn or attempt to learn something together" (Dillenbourg, 1999:1). Collaborative learning is a strategy that "shifts the responsibility for learning away from the teacher, as expert, to the student" (Mentz and Goosen, 2007:330)…an approach that is well suited to developing self-directed learners as it fosters sharing of responsibilities and individual accountability. Collaborative learning can occur in the traditional classroom, blended as well as in online environments (Zafeiriou, Nunes and Ford, 2001). In the classroom environment it may also be referred to as groupwork or co-operative learning (Mentz and Goosen, 2007).

Authentic learning (AUL) refers to the situating of learning activities in "real-world, complex problems and their solutions" (Lombardi, 2007:2). Authentic learning is derived from the practices of apprenticeship without the risks of managing the activities of students in the workplace (Lombardi, 2007:6). There is also a kind of authentic learning that is referred to as situated learning (Lave and Wenger, 1991) that was reviewed in Section III.1.ii. Another authentic learning approach is experiential learning (Kolb, 1984), which will be examined in Section III.3. A third authentic learning approach is 'action learning', which will be examined next.

Action learning (AL) is a system of problem-posing that aim to develop organisational members abilities to solve particular organisational problems (Revans, 1982b:66). Action learning differs from authentic learning in that it mostly occurs in

real-world situations and is therefore more likely to be found in organisations and not in academia, although there are some exemplars in IS (Eagen, Ngwenyama and Prescod, 2008).

Problem-based learning (PBL) is an active approach to learning that brings real-world or simulated problems into the classroom (Hmelo-silver, 2004:235). PBL is a problem-centric approach that may have multiple solutions and thus also cross disciplinary boundaries (Stentoft, 2017). A variation of PBL was developed at Aalborg University, based on the critical theories of Oskar Negt (Bygholm and Buus, 2009). The central emphasis in the APBL approach is the problem and not the curriculum, and the focus is on socio-political problem and not on disciplinary knowledge. The other distinguishing feature of APBL is that the approach has high levels of participant control, is interdisciplinary and is project-based. This allows students from multiple disciplines to work in project-based teams in order to solve real-world and pressing problems. Unlike action learning, PBL does not necessarily contend with real-world problems that are dependent on the implementation of a solution. PBL is similar to CBL in that they both attempt to learn from previous experience or cases; however, such cases or problems are mostly derived or fabricated. PBL is different from CBL in that problems are often ill-structured and require an inductive approach to learning, whereas CBL represent well defined cases that require a more deductive approach to learning. Because problems are often ill-structured they are not necessarily preceded by any form of instruction, either on how to solve the problem or the kinds of solutions that such a problem may have (Grabinger and Dunlap, 1995:8).

Question-based learning (QBL) (Rothstein and Santana, 2017) is another interactive approach to learning. The basis for the QBL is a question focus, not unlike the PBL or AL approach. A question can be a topic, phrase or situation that can form the basis for further questions. Once such questions have been produced, improved and prioritised they are then acted upon. The action may be in terms of a project, or action and the final stage is the reflection on such action.

Project-based learning (PRBL) is a suitable approach to preparing students in IS for professional environments where information systems are designed and implemented as projects (Guthrie, 2000). PRBL engages students with real-world problems and challenges (Licht, 2014), much like PBL. The difference with PBL is that

PRBL extends beyond knowledge of solving the problem and develops a solution or artefact that is used to solve the problem.

Work-integrated learning (WIL) is an active approach to teaching that integrates real-world activities in the formal learning environment (Winberg et al., 2011). Teaching approaches that can be integrated with the workplace can be problem-based, project-based, collaborative, authentic or virtual. The principle behind WIL is for students to integrate their theoretical (classroom) knowledge with real-world (workplace) experience (Riordan, Hine and Smith, 2017).

Inquiry-based learning (IBL) is a learning approach that is broader than QBL or PBL and encompasses any approach that privileges the exploring of questions and problems in formal educational settings (Aditomo et al., 2013). IBL is both seen as a process of learning as well as teaching. The emphasis of IBL is on the collaborative (joint) exploration of problems through inquiry and research (Rakrouki et al., 2017). Brew (2003) compares IBL to research-based learning (RBL) in terms of its orientation. IBL has an internal orientation with the intention to understand, whereas RBL has an external orientation where the intention is to produce an outcome or a product.

Research-based learning (RBL) is an active learning approach where students conduct actual research in authentic environments (Elsen et al., 2009) and has a number of synergies with EL, PBL, AUL and SLL and IL (Brew, 2003; Rakrouki et al., 2017). Shaban, Abdulwahed and Younes (2015:21) outline some of the differences and similarities with the earlier outlined approaches:

> "Research-based Learning (RBL) is an approach in higher education that fits into IBL/PBL domain. RBL focuses on the development of learners as independent researchers. RBL also helps the learners liberate their thinking, develop their writing and presentation skills, and gain confidence in their intellectual abilities. Sometimes, forms of IBL/PBL are referred to as RBL; however, the boundaries between them should, in our opinion, be more distinct. Indeed, RBL falls into IBL/PBL approaches; however, not every IBL/PBL is a rigorous RBL approach. For instance, many PBL projects emphasize on design and implementation, and not on research. IBL focuses on inquiry, and in a general sense is closely tight with RBL, which also has inquiry in its core; however, while it is not necessary to

have a research outcome in IBL, the emphasis on research is clear in RBL." (Shaban, Abdulwahed and Younes, 2015:21).

RBL contains many of the positive aspects of IBL, PBL, COL, BL and even WIL and AUL as students conduct research in authentic environments (a research university). This does not automatically accord RBL as the most favoured active learning approach, however it is an approach that puts the student at the centre of the learning approach, as well as foster the development of self-directing capabilities as well as developing the competencies to learn more about the discipline or field.

III.3.iii Fostering Active Learning Approaches

The main purpose of this review is to highlight some of the advantages and disadvantages of each active learning approach and its support for developing self-directed learners in IS. A synthesis of these characteristics can be represented in tabular format. See Table XII.6 Active Learning Approaches matrix in the Appendix.

At their core, active learning approaches are mostly based on Dewey's philosophy that students learn best by doing (Glenn, 2015; Riordan, Hine and Smith, 2017; Spronken-Smith and Walker, 2010). What differentiates them from one another is the focus of the approaches and the benefits of each. As Shaban, Abdulwahed and Younes (2015) indicate, it is worthwhile to be more specific as to boundaries of each approach.

Table III.2 Focus and competencies of Active Learning Approaches

App	Focus	Competencies
LBL	Content	Receiving information, note-taking, rote memorisation, limited application, writing tests and exams
BLL	Information Literacy	Using technology and the internet, finding information, evaluating sources
CBL	Cases	Case-analysis, critical reflection, theoretical/practice knowledge, problem solving capabilities.
COL	Collaboration	Student engagement, individual efficacy, inter-disciplinary learning, professional development.
AUL	Authentic Environments	Multi-disciplinary, problem-solving, real-world practices
ACL	Actions/Activities	Solving operational challenges, analysing solutions, implementing solutions, reflection on experiences
PBL	Problems	Solving problems, self-directed learning, collaboration, transfer of knowledge

App	Focus	Competencies
QBL	Questions	Formulating questions, finding solutions, prioritising actions, action and reflection.
PRBL	Projects	Planning and implementing projects, self-directed learning, critical thinking, problem solving, creativity, communication
WIL	Work Experience	Improved academic performance, inter-disciplinary thinking, motivation, communication skills, teamwork, leadership, collaboration, workplace preparation, professional identity, positive work values and ethics self-efficacy, technical knowledge and skills.
IBL	Inquiry	Reflection, critical thinking, independent learning, personal responsibility
RBL	Research	Research, information literacy, technology literacy, problem solving, project planning, communication, self-efficacy, inter-disciplinary, formulating questions, finding solutions

In traditional lecture-based learning (LBL), the outcomes are typically knowledge or discipline specific competencies. In active learning approaches, the discipline is secondary to the focus of the approach. The learning skills and competencies that students develop in the process are the kinds of skills and competencies that are referred to as graduate attributes (Barrie, 2007; Bridgstock, 2009), higher-order thinking skills or 21st century skills (Saavedra and Opfer, 2012). These are skills such as "critical thinking, creativity, collaboration, communication, information literacy, media literacy, technology literacy, flexibility, leadership, initiative, productivity, social skills". Although these skills should not be taught in isolation to curriculum content, the teaching of content alone is insufficient for the development of these 21st century skills, and thus a more active approach to learning is required.

This illustrates how research-based learning retains many of the characteristics of inquiry-based learning, problem-based learning, experiential learning and collaborative learning without the disadvantages of less active approaches such as lecture-based learning or case-based learning.

III.3.iv Challenges in implementing active learning

It is already clear that teaching students' disciplinary knowledge does not help them to learn how to think and reason in a discipline. Nor does it teach educators how to teach students to learn. Active learning strategies are able to teach students a wide range of competencies and skills that are deemed critical to 21st century graduates but still remain latent in modern curricula.

Some students dislike active learning approaches because they do not like working in groups and prefer to work alone (Mentz and Goosen, 2007). There also appears to be a lack of acceptance by students of 'modern' teaching methods (Bygholm and Buus, 2009).

Some of the challenges for implementing active learning approaches in the classroom are over reliance on (tried and tested) didactic teaching methods, higher demands on academics (Ward, 1998; Winberg et al., 2011), changing roles that are required of teachers (Bygholm and Buus, 2009), lack of education for teachers on active learning methods, students "freeriding" or copying their teammates' work, issues with discipline, difficulty in managing groups in large classes, groupwork taking longer than individual work, classrooms not being suitably arranged to facilitate groupwork (Mentz and Goosen, 2007), requiring different (new) forms of assessment (Segers, Dochy and de Corte, 1999), sufficient time for students to plan and implement their projects, and uncertain outcomes (Licht, 2014), availability of teaching cases (Ward, 1998), challenging existing conceptions in HEI as to what constitutes valid knowledge, disciplinary boundaries, power relationships, learning becoming more collaborative and blurring the distinction between teacher and student (Brew, 1999).

III.3.v Teaching students how to learn

There are many thoughts on how active learning methods can be introduced in the classroom. Of course, each method requires its own unique approach. One perspective is that of Saavedra and Opfer (2012).

1. Make it relevant: The curriculum needs to be made relevant to students' lives. Choose topics that are important both to students and to the discipline.
2. Teach through the disciplines: In addition to learning about the discipline, students need to learn how to produce knowledge in the discipline.
3. Develop thinking skills: Lower and higher-order thinking skills need to be developed concurrently.

4. Encourage learning transfer: Attention needs to be given to how students can transfer the knowledge that they obtain in a discipline, to other disciplines and the workplace.
5. Teach students how to learn: Students are limited by formal learning and therefore need to be taught 'how' to learn (metacognition) and making them more aware of their own thinking.
6. Address misunderstandings directly: Students need to be made aware of their misunderstandings so that they can revise their own misconceptions.
7. Treat teamwork like an outcome: Collaborative learning is an essential 21st century skill and students should not learn in isolation.
8. Exploit technology to support learning: Technology provides students with new ways to develop their critical thinking and communicative skills.
9. Foster creativity: Creativity is a sought-after skill in many disciplines and students should be taught how to express their creativity.

It would be ideal to incorporate the best aspects of active learning strategies in the classroom; however, this would not be necessary or possible in many situations. Teaching students how to learn would also require a better understanding of how we learn, a topic to which I turn to next.

III.4 Learning from our experiences

How we learn is one of the most studied aspects of human nature yet we have not yet come to an agreement even of what learning is and where it comes from. There are many models, theories, frameworks, processes or systems that explain how we learn (Dewey, 1910; Vygotsky, 1978). Although learning is typically characterised as a change in behaviour, it can also be seen as a process(Dunn, 2002).

> "The most socially useful learning in the modern world is the learning of the process of learning: a continuing openness to experience and incorporation into oneself of the process of change" (Rogers, 1969:114).

For Mezirow (1990:11), "no need is more fundamentally human than our need to understand the meaning of our experience". Mezirow provides a more comprehensive working definition of learning in the context of our experiences.

> "Learning may be defined as the process of making a new or revised interpretation of the meaning of an experience, which guides subsequent understanding, appreciation, and action" (Mezirow, 1990:1).

III.4.i Experiential Learning

Fundamental to active learning is the learning from our own experiences and not merely those of others. Experiential learning is an approach to learning that highlights the belief that learners create knowledge through the transformation of experience (Kolb, 1984). Experiential learning is a naturalistic way of learning that most closely represents the ways that humans make sense of the world around them, although it can also refer to the structuring of experiences in a formal environment (Brookfield, 1983:16). By formally introducing experiential learning in the classroom helps to satisfy some of the needs of adult learners as well as longer-term benefits in terms of knowledge.

> "Experiential learning benefits students, in substantive, methodological, pedagogical, and transitional ways. Short-term experiential assignments, such as observations, participant-observations and field trips, mitigate some of the drawbacks to long-term experiential exercises, but still elicit similar benefits". (K.Smith and Smith, 1999)

Kolb & Kolb (2005) acknowledge the roots of experiential learning in the works of "John Dewey, Kurt Lewin, Jean Piaget, William James, Carl Jung, Paulo Freire, Carl Rogers" as built on six propositions.

1. "Learning is best conceived as a *process*, not in terms of outcomes";
2. "All learning is relearning";
3. "Learning requires the resolution of conflicts between *dialectically* opposed modes of adaptation to the world";
4. "Learning is a *holistic* process of adaptation to the world";
5. "Learning results from synergetic transactions between the person and the environment";
6. "Learning is the *process* of creating *knowledge*".

Those still doubting the veracity of experiential learning need to take note that the mere concepts of learning and even teaching are subsumed as a 'kind' of experience. Hence experiential learning as a concept refers to the larger aspect of human experience, whereas experiential learning as a theory represents the theories of learning from experience.

Experiential learning is frequently represented as a cycle of concrete experience→ reflective observation→abstract hypothesis → active testing. Zull (2002) suggests that these cycles map directly to parts of the brain i.e. sensory and post-

sensory (concrete experience)→temporal integrative cortex (reflective observation)→frontal integrative cortex (abstract hypothesis)→premotor and motor (active testing) (in Kolb and Kolb, 2005). Batista and Corney (2012) provide an integrative model of these experiential learning cycles by incorporating the Kolb cycles (Kolb and Kolb, 2005) with those of Argyris and Schon (1996) and Greenway which can be explained as follows[18]:

Act/Experience – "the learning process often begins with a person carrying out a particular action and then seeing the effect of the action in this situation" (Smith, 2010).

Reflective Observation – "understand these effects in the particular instance so that if the same action was taken in the same circumstances it would be possible to anticipate what would follow from the action"

Conceptualize/Abstract Hypothesis – "understanding the general principle under which the particular instance falls"

Apply/Active experimentation – "application through action in a new circumstance within the range of generalization"

Experiential learning 'projects' can however provide students a 'depth' of learning that cannot be offered by explicative teaching, it allows students to form deep and meaningful connections, allows them to combine the abstract, concrete and reflective side of learning as well as multi-sensory involvement and facilitates the transition from education to employment (Wright, 2000:118)

[18] The descriptions are quoted from (Smith, 2010)

III.4.ii Structuring the meaning of experiences

This process of structuring the meaning of our learning can be represented schematically as in Figure III.1. This model is followed by a broader description of each of these phases of learning.

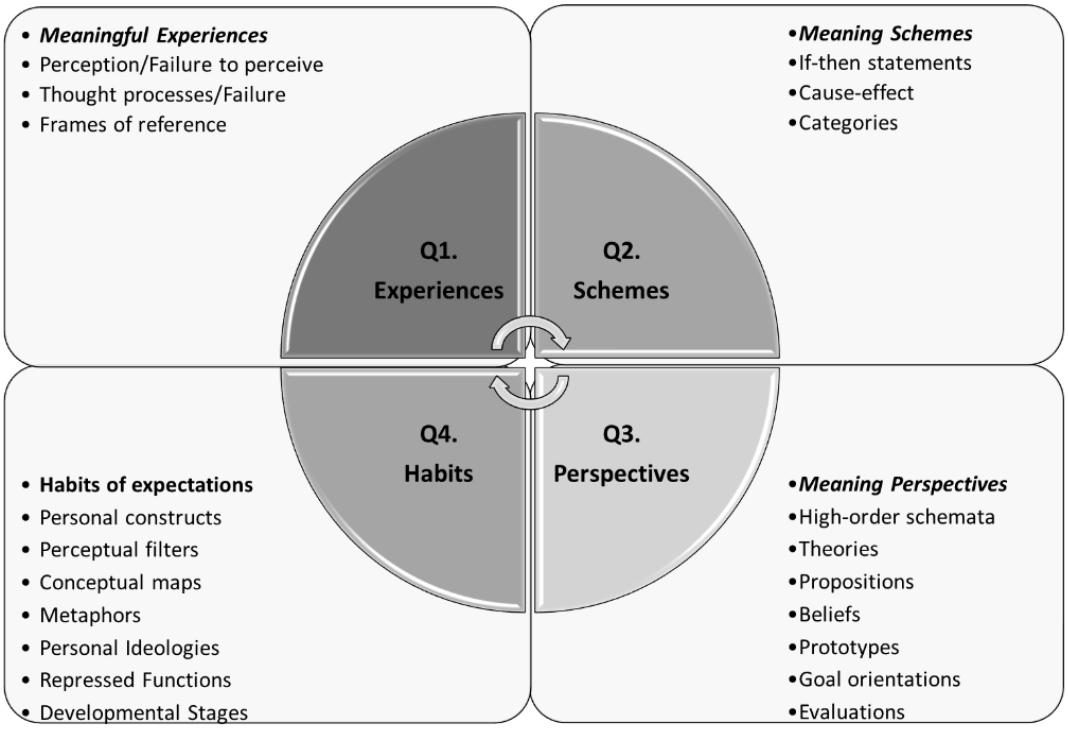

Figure III.1 Structuring Meaning from Experiences (adapted from Mezirow, 1990:2-4)

Collectively, meaning schemes, meaning perceptions, and habits of mind all influence the way that we think about and perceive the world around us. If there is a disconnect between what we see and what we believe, the latter mostly takes precedence and leads to psychological defence-mechanisms that block out the experience. It is at this critical juncture that reflection allows us to look back at the past and make sense of such experiences.

Meaningful experiences: All humans have some form of perception of their experiences. The differences between experiences are determined by one's 'frame of reference', i.e. a group of people can attend the same dinner party, yet each leave with a different experience of the event. For Mezirow this 'frame of reference' both influences and is influenced by what we perceive or fail to perceive in a situation, as well as think or fail to think about it.

Meaning schemes "are sets of related and habitual expectations governing if-then, cause-effect, and category relationships as well as event sequences" (Mezirow,

1990:2). These schemes represent who we think we are in the context of society as well as govern certain expectations of normalcy, i.e. things such as seasons, people's behaviour in traffic, day to day events etc. These are our 'internal rules' so to speak of interpreting ourselves and the world around us.

Meaning perspectives "are made up of higher-order schemata, theories, propositions, beliefs, prototypes, goal orientations, and evaluations, and what linguists call 'networks of arguments'" (Mezirow, 1990:2). These perspectives allow us to consider ourselves and actions in relation to others i.e. teacher-student, parent-child, rich-poor, internal-external. These meaning perspectives allow us to make sense of objects and events in terms of what others define them to be, i.e. they provide us with principles for interpretation. These are (uncritically) acquired through a process of 'socialization' in classrooms, at home and on the playground.

Habits of expectations "are dispositions and capabilities that make up our everyday involvement within situations that 'make sense'" (Mezirow, 1990:4). These expectations guide our actions and also what we are able to interpret from those actions. What we thus believe, think, feel or perceive are ultimately influenced by our habits of mind.

> "Perhaps even more central to adult learning than elaborating established. meaning schemes is the process of reflection back on prior learning to determine whether what we have learned is justified under present *circumstances*" (Mezirow, 1990:5).

Experience and reflection are thus an essential part of the learning process, as it allows us to consider the past and our past actions. More importantly, reflecting critically on our meaning schemes and perceptions allows us to transform the way that we see the world, thereby allowing us to perceive the world anew.

III.4.iii Self-limiting beliefs

Fostering SDL is fraught with its own challenges. as Argyris (1976) aptly illustrates in his model of single and double loop learning or what they call 'Model 1' and 'Model 2' theories-in-use more than 95% of a population of 1000 students remain at 'Model 1' theories-in-use.

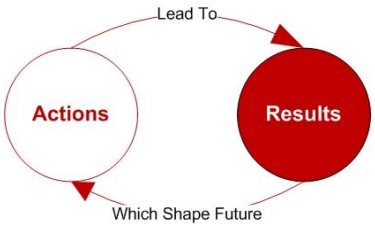

Figure III.2 Single Loop Learning Figure III.3 Double Loop Learning (Argyris, 1976)

Model 1 theories-in-use can be illustrated by their analogy of a thermostat i.e. a thermostat is able to control the temperature in a room by sensing the environment and adjusting and heating or cooling accordingly. Yet a thermostat is not able to change the 'set' temperature or even question its role as a thermostat. These are functions of Model 2 theories of action. In model 1 thinking, people are programmed to act or think in certain ways, yet despite knowing that they are programmed, it does not help them to change such a program. In other words, one of the 'programs' of Model 1 theories are that one cannot change the programme.

> "In previous models, learning was achieved through reflection on the success (or failure) of your actions. However, in the double-loop model, learning is realized through reflection on the validity and usefulness of your beliefs" (Argyris, 1976).

Hence the move to model 2 theories is difficult or impossible due to the 'self-limiting' beliefs of theories that are in use. Considering the immense value in unlocking Model 2 theories, the role of the educator must therefore firstly be able to make explicit their own limiting beliefs, and secondly to assist students in articulating their own. This makes the classroom a bit like a group therapy session.

> "The focus is on how to help people learn to become more effective in their problem-solving activities and in increasing the quality of life in their environment" (Argyris, 1976).

This cannot be achieved by providing students with structured problems that have known solutions, and needs to encourage group problem-solving where learning comes largely from other students and not the educator (Argyris, 1976). These problems need to be based on the complexities of real-life, i.e. authentic learning (Schultz and Kim, 2008), structured around the students' needs and interests, and must capture and maintain their interest over a long period of time. Furthermore, to

be congruent, educators' actions need to be consistent with their teachings, else learners will not trust the process.

Because of the strong emotions that such a process (may) evoke, it becomes necessary to structure it so that the students are supported in 'going out on a limb', as there is unlikely a reward structure in his sphere of experience that supports the new model of learning *"otherwise we would be educating for the status quo"* (Argyris, 1976). A high-level process for such teaching can be gleaned from Argyris' writing as follows:

- Helping people become aware of the discrepancies between their espoused theories versus their theories in use; and
- Helping individuals to use their new ways of thinking in situations "outside the learning environment and under conditions of zero to moderate stress".

The responsibility for such kind of learning has been passed on to HEIs from primary, secondary, and tertiary education and then becomes a problem in life and business where people do not think 'out of the box' so to speak. Dewey (1983) suggests that such a process can only be imposed from above. It is however oppressive to impose curriculum material on students (Freire and Faundez, 1989) and educators need to emphasise innovative thinking, thinking of thinking, thinking out the box, or challenging student's beliefs by means of developing self-directed learners.

III.4.iv Self-Regulated Learning

Self-regulated learning (SRL) is often used in the context of self-directed learning. The difference between SRL and SDL is that SDL describes the approach to learning by a learner, whereas SRL defines the learning process in relation to a task (Gandomkar and Sandars, 2018:1). "To qualify specifically as self-regulated in my account, students' learning must involve the use of specified strategies to achieve academic goals on the basis of self-efficacy perceptions" (Zimmerman, 1989). Like reflective learning, SRL describes the process where a learner sets their own goals, plan and monitor their own learning, and reflect on the outcome of such a process. These phases are described by (Schunk and Zimmerman, 1998) as:

Forethought>>Performance>>Self-Reflection

Forethought involves the setting of goals (task analysis) and the formulation of strategic plans. During this phase, self-motivation (self-efficacy, outcomes

expectation, interest and goal orientation) determine the kinds of tasks that are engaged with. Performance requires the execution of the task (self-control) as well as the monitoring of the execution (self-observation). In the final phase, the learner reflects on the execution of the task and adjustments made for improvements to the process. These models were adopted to include the learning in a shared collaborative context such as CSCW (Hadwin, Järvelä and Miller, 2011). In collaborative learning, learners are not only focussed on their own knowledge constructions but also need to focus on the construction of shared knowledge (Splichal, Oshima and Oshima, 2018:133).

III.4.v Unlearning

In an environment where knowledge rapidly becomes obsolete, and where holding onto false beliefs can be harmful, it is also important to consider the concept of unlearning. Unlearning is defined as "…the process of reducing or eliminating pre-existing knowledge or habits that would otherwise represent formidable barriers to new learning" (Newstrom, 1983:36). Unlearning recognises that existing knowledge or behaviours can interfere with learning and that unlearning needs to occur in order to change those prior frames of reference/mindsets/theories of action (Becker, 2005:660). These frames of reference are also referred to as mental models, mindsets, cognitive maps, theories of actions or world views and are pivotal in influencing the way that people view and act on the world they perceive. These frames of reference limit the new knowledge that individuals are able to assimilate, thus negating the 'clean slate' concept that students minds can merely be filled with new knowledge (Newstrom, 1983). This has significant implications, particularly in LBL where students are merely presented with new knowledge without considering their prior beliefs or frames of reference.

Strategies to contend with 'unlearning' range from positive to negative to neutral strategies (Newstrom, 1983). Positive strategies such as public commitments, intrinsic rewards, extrinsic rewards, peer pressure or feedback all work to changing pre-existing habits and beliefs by external support or rewards. Negative strategies such as fear of failure, social constraints and direct barriers stimulate change through avoidance behaviours. Neutral strategies such as time and immersion achieve two opposite ends, where habits that are not used or encouraged change over time,

whereas immersive strategies emphasise high pressure intensive environments such as military basic training, where the environment determines the new habits.

As the anecdote contends…how many psychologists does it take to change a lightbulb? Only one…but the bulb must want to change. Likewise, students need to acknowledge their limiting beliefs first, before being provided with a better alternative to encourage growth and learning.

III.4.vi Reflective learning

Reflective learning is learning that "involves thinking about and analysing what one has done (or is doing)" (Reflective Learning, 2013). Many references to reflection refer to Dewey's (1933:6) definition as *"an active, persistent, and careful consideration of any belief or supposed form of knowledge in light of the grounds supporting it and future conclusions to which it tends."*. One of the more relevant definitions in the context of learning is that from Boud and Walker:

> "Reflection in the context of learning (is) a generic term for those intellectual and affective activities in which individuals engage to explore their experiences in order to lead to new understandings and appreciations" (Boud, Keogh & Walker 1985, 19 in Boud and Walker, 1991:11).

Mezirow extends this definition to include "*making inferences, generalizations, analogies, discriminations, and evaluations, as well as feeling, remembering, and solving problems. It also seems to refer to using beliefs to make an interpretation, to analyze, perform, discuss, or judge---however unaware one may be of doing so"* (Mezirow, 1990:5). For Dewey, reflection is not just the thinking involved in random thoughts, but a conscious and concerted organisation of thoughts or reasoning about a particular matter into a logical sequence (a 'train, chain or thread').

> "***Reflection*** involves not simply a sequence of ideas, but a *con-sequence* a consecutive ordering in such a way that each determines the next as its proper outcome, while each in turn leans back on its predecessors. The successive portions of the *reflective* thought grow out of one another and support one another; they do not come and go in a medley. Each phase is a step from something to something technically speaking, it is a term of thought. Each term leaves a deposit which is utilized in the next term. The stream or flow becomes a train, chain, or thread" (Dewey, 1910).

Much has been written about the value of reflection in education (Husu and Tirri, 2003; Imel, 1998; King, n.d.; Koole et al., 2012; Stein, 2000). Following is a synthesis of some of these insights.

Table III.3 Pedagogical implications of reflective practice (from Kitchenham, 2008:106)

Influence	Educational Concept	Pedagogical Implications
Kuhn (1962)	Perspective Transformation	Changing frames of reference that comprises habits of mind and meaning perspectives
	Frames of Reference	Paradigms or ways of looking at things by a community of practitioners
	Meaning Perspectives	Redefining or solving problems by looking at them in new ways
	Habits of Mind	Common set of problems or solutions.
Freire (1970)	Empowering	Teacher needs to be democratic and "form a transformative relationship between him or her and the students, students and their learning, and students and society"
	Participative	"The teacher has to welcome input from the students as well as present critical ideas for discussion so that they 'affirm themselves without thereby disaffirming their students'" (Freire and Faundez, 1989, 34).
Freire (1973)	Conscientization	"The conduit for this democracy is conscientization and its related critical consciousness, which Freire argues is actualised through three stages of consciousness growth"
	Expansive	"education does not stop in the classroom but continues in all aspects of a learner's life"
	Political	Education is political.
Shor (1993).	Approach	"politics influences the way the teacher discusses concepts with students, the types of tests used, the activities and materials chosen for study, and the level of risk taking in the classroom"
Freire (1973)	Transformative	Teachers have to overcome the 'educational certainty' that teaching is lecturing and knowledge is one-way transmission
Habermas	Technical Learning	"Technical learning is that learning that is rote, specific to a task, and clearly governed by rules"
	Practical Learning	"Practical learning involves social norms"
	Emancipatory Learning	"Emancipatory learning is introspective as the learner is self-reflective and experiences self-knowledge"

> "Reflection enables us to correct distortions in our beliefs and errors in problem-solving" (Mezirow, n.d.)

Reflection is a way for adults to change their pre-existing frames of reference or habits of mind (Kuhn, 1970), it empowers students and educators (Freire and Faundez, 1989), acts as a conduit for conscientization (Freire, 1973), is transformative (Mezirow, n.d.), and fosters emancipatory learning (Habermas, 1974). As such, reflection is a critical competency for students both to learn from their experiences as well as to learn how to learn.

III.5 Teaching critical reflection

Although it is questionable whether one can teach students to reflect critically (Q3)…and even whether these skills are transferable to practice (Stein, 2000)[xii], the imperative remains with the educator and the education system to foster such reflective capabilities with students, else there will be no improvement on their ability to adapt to circumstances. Smith (2011a) cautions that by teaching students to reflect critically the educator introduces a dynamic in the classroom where students themselves are liable to question the procedures of the educator as well as the education system in which they are learning, and that not everyone will be agreeable to such a different approach to learning, which can be taken as criticism for the teacher concerned.

III.5.iDomains of learning

Mezirow (1991) isolates three broad domains of learning that can be mapped to Habermas' domains of action (Aber, 2010), namely the Instrumental, the Dialogic and the Self-reflective.

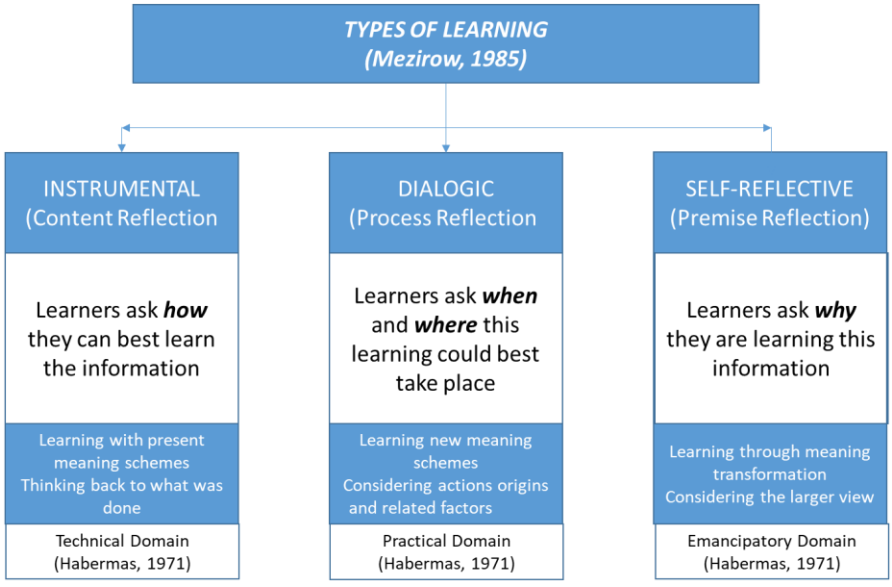

Figure III.4 Diagrammatic Representation of Mezirow (1985) Transformative Learning Theory (in Kitchenham, 2008:111)c

At the instrumental level, learners are interested in 'how' best to learn the information presented to them. At the dialogical level learners are more concerned with 'when' and 'where' this knowledge is applicable, i.e. the contextual nature of the knowledge. At the self-reflective level, learners critically question the nature of the knowledge ('why' it is important) as well as the circumstances surrounding the delivery thereof. The aim of

emancipatory education is to foster independent thinking and thus the emphasis is placed on developing self-reflective learners (premise reflection). Kember et al. provide some guidance as to how such a process may unfold:

- "The subject matter of reflection is an ill-defined problem – the type of issues and cases dealt with in professional practice"
- "Reflection may be triggered by an unusual case or deliberate attempts to revisit past experiences"
- "Reflection can occur through stimuli other than problems or disturbances to the normal routine. The stimuli may be encouraged or arranged"
- "Reflection operates through a careful re-examination and evaluation of experience, beliefs and knowledge"
- "Reflection most commonly involves looking back or reviewing past actions, though competent professionals can develop the ability to reflect while carrying out their practice" (Kember et al., (2008:174)

Although reflection is a natural process that humans engage in, fostering critical reflection in education is not, as it requires students and educators to critically question their prior unconscious habits and beliefs.

III.5.ii Reflective learning

Reflection is very important in the self-directed learning process as it allows students to recognise their own limiting beliefs and to take responsibility for their own learning (Brookfield, 1998; Millar, 1991:15). The critical nature of reflection is exhibited by thinking of the past in order to improve the future, and also by examining how we think about these events. Critical reflection has been defined by Mezirow as follows:

> "the process of becoming critically aware of how and why our presuppositions have come to constrain the way we perceive, understand, and feel about our world; of reformulating these assumptions to permit a more inclusive, discriminating, permeable and integrative perspective; and of making decisions or otherwise acting on these new understandings. More inclusive, discriminating, permeable and integrative perspectives are superior perspectives that adults choose if they can because they are motivated to better understand the meaning of their experience" (Mezirow, 1990).

The importance of reflection and particularly critical reflection for education is that it assists in problem-solving (Yost, Sentner and Forlenza-Bailey, 2000), which is one of the key attributes of expert practitioners, and also to "challenge presuppositions, explore alternative perspectives, transform old ways of understanding, and act on new perspectives" (Mezirow, 1990:18).

> "These higher thought processes involve reflection on the assumptions underlying a decision or act and on the broader ethical, moral, political, and historical implications behind the decision to act" (Yost, Sentner and Forlenza-Bailey, 2000:41).

Reflecting on one's actions is a useful activity as it helps us to examine the 'goodness' of our actions and their outcomes and formulate fixed ways of dealing with similar situations. As can be seen from the competency levels and expert practitioners, having such a set of rules or procedures is valuable in formulating quick responses to similar situations, thus freeing up one's mental capabilities to be able to deal with broader issues.

> "Simply teaching subject knowledge falls short of ensuring new practitioners are empowered to question, and potentially improve upon, *what* they are doing or *why* they are doing it" (Clegg 1999 in Smith, 2011:218).

The problem arises when these acquired rules and procedures, which are internalised and often unexamined, start to restrict our present actions[xiii]. Schön (1987) highlights this nature of reflection in that one can reflect on the past (on action) in the present (in action) as well as for the future (for action)[19].

> "It is now widely accepted that successful professionals need to reflect upon their actions as most tasks they perform involve novel elements to which there are no defined solutions. This implies that courses educating professionals should aim to develop students' abilities to reflect upon their actions. The aim of encouraging student reflective thinking is now incorporated into many professional courses" (Kember et al., 1999:18).

[19] These can be mapped to the 'postactive', 'interactive' and 'preactive' phases of teaching.

To appreciate the value of critically reflective practice in education more deeply, it is worthwhile to examine the orientation of educators with regards to reflection on their practices, and how these impacts on their actions in the classroom.

III.5.iii Orientations to reflective practice

As a guide to reflective teaching, Wellington and Austin (1996) extend a line of reasoning from Habermas (1974) and others to conceptualise a model that represents the outcomes of educators' tacit decisions in the classroom in terms of their focus and pedagogical actions as summarised in *Table XII*.3[20]. This model can assist educators in examining their own practices in relation to others. One should, however, be cautioned about using this framework as too rigid a tool for classifying reflective teaching practices. Wellington and Austin (1996:309) label the first non-reflective level 'immediate orientation' and others 'habitual action.' This would indicate a tendency by teachers to maintain the status quo and work within the structures of the institute[xiv]. The next four levels of reflective practice are illustrated in Figure III.5 below.

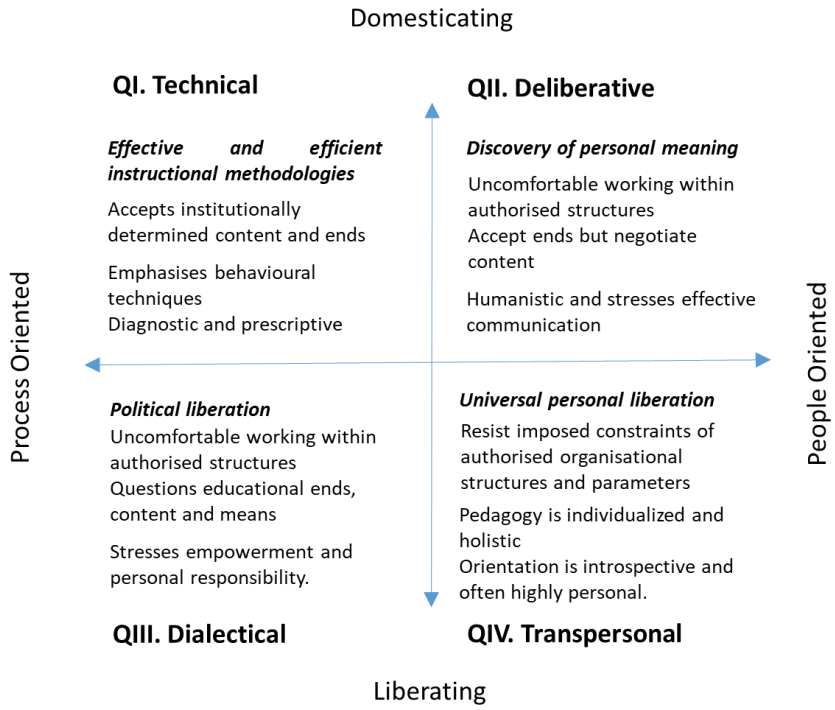

Figure III.5 Orientations to reflective practice adapted from Wellington and Austin (1996:309-311)

[20] See Table XII.3 Orientations to Reflective Teaching Practice (adapted from Wellington and Austin, 1996, 309-310)

Wellington and Austin (1996) do not present this model as a hierarchical model. They do, however, indicate both personal growth and growth in pedagogical practices through moving from a self-centred perspective towards an other-centred view of the world, as well as progression from systematic processes towards a people-oriented approach. At the highest level, the orientation returns to reflection on oneself as an educator in the context of an educational system that is both constraining one's teaching practices and the students' individual growth and development.

Wellington and Austin (1996) do not apply these principles in practice but leave it to educators to reflect on how they may change their own practices and/or evaluate the practices of others in order to surface their underlying orientation or value systems. The implications are that those educators who are encouraging change in education are more likely to come into conflict with those educators wishing to maintain the status quo. The desire for equilibrium thus comes from a need for 'pleasant survival' whereas the need for change comes from a desire for self-understanding.

III.5.iv Transformative learning

This process of 'critical reflection' has been conceptualised as a pedagogy of "transformative Learning" by Mezirow (1997). Transformative learning is seen as *"a deep, structural shift in basic premises of thought, feelings, and actions"* (TLC, 2004 in Kitchenham (2008:105). Kitchenham (2008:110) summarises Mezirow's ten phases of transformative learning in Table III.4 below.

Table III.4 Mezirow's (1985) ten phases of transformative learning (in Kitchenham, 2008:110)

Phase	Description
1	"A disorienting dilemma"
2	"A self-examination with feelings of guilt or shame"
3	"A critical assessment of epistemic, sociocultural, or psychic assumptions."
4	"Recognition that one's discontent and the process of transformation are shared and that others have negotiated a similar change"
5	"Exploration of options for new roles, relationships, and actions"
6	"Planning of a course of action"
7	"Acquisition of knowledge and skills for implementing one's plans"
8	"Provisional trying of new roles"
8a	"Renegotiating relationships and negotiating new relationships"
9	"Building of competence and self-confidence in new roles and relationships"
10	"A reintegration into one's life on the basis of conditions dictated by one's (new) perspective."

One way that Smith suggests that could ameliorate such risks is to be explicit with students as to the process and procedure of introducing critical reflection in the classroom. Aronson (2011:200–204) provides twelve tips for educators to teach or implement reflection in the classroom.

Table III.5 Twelve tips to implement reflection (Aronson, 2011:200-204)

Tip	Description
Define reflection for participants	Define reflection in the classroom in terms of skillsets and outcomes as it is such a familiar yet misunderstood concepts
Decide on learning goals	By setting reflective learning goals, educators emphasise the importance of reflection in the curriculum as a tool to improve practice.
Choose an appropriate instructional method	Decide on the format and structure of reflective exercises ie.in-class, take home; oral, written, blogs or video or reflecting on the past, or in action or for action; by storytelling, diaries etc.
Structure assignments	Determine whether reflections should be structured or unstructured and create a prompt or guidance in order to avoid "anecdotes devoid of learning"
Deal with ethical and emotional concerns	Reflections elicit strong emotional responses and/or may reveal inappropriate disclosures and educators need to pre-empt how to handle such a situation without exposing/endangering the learner or the actions that have been reflected on.
Create a follow-up	Learners need to be prompted to evaluate their reflections and plan to address what they learned in practice.
Create a conducive learning environment	Establish a positive learning climate by means of an authentic context and a safe and supportive environment for reflection. Broaden reflection to other faculty/courses. Provide sufficient time for reflection. Predetermine the purpose of reflections, their assessment and who will have access to them.
Teach learners about reflection	Before asking learners to use reflection in the classroom, they need to be taught about reflection and the components that will be used for assessment
Provide feedback and follow-up	Evaluate reflections in order to reinforce its importance as well as provides students with additional insights that they may be unaware of. Feedback can be individual, peer, group or faculty based.
Assess reflections	Assess reflections both for learning (about the course) as well as learners' abilities to reflect/critically reflect. Assessment can be formative or summative but should be aimed at continuous professional development and not be merely for marks. Marks indicate significance to the course.
Integrate reflection into the broader curriculum	Reflection should be episodic and longitudinal and should be implemented across a degree programme and beyond, such as in re-certification programmes or CPD activities.
Reflect on the process of teaching reflection	Practice what you preach. Follow the same structure that is used for teaching to reflect on your own practice, either before, in or after teaching. Enrol an associate to provide feedback and improve on your practice.

By using these tips to structure one's own introduction of reflections in the classroom, Aronson (2011) believes that students' reflections will more likely elicit deeper reflections and reframing of perspectives.

III.5.v Reflective tools and techniques

Biggs (2011) recognises that the kind of teaching that occurs most often at HEI's merely tests student's abilities to memorize material. This is also evident in the ways that we assess student learning, i.e. through tests and exams. Other forms of assessment such as a research project or case study will evaluate a different kind of learning than mere subject content. Biggs provides a useful table to summarize the most likely kinds of learning assessed by various methods:

Table III.6 Assessment Tasks and kinds of learning (Biggs, 2011:51)

Assessment Mode	Kind of Learning Assessed
Extended prose, essay-type	
Essay Exam	Rote, question spotting, speed structuring
Open book	As for exam, but less memory, coverage
Take-home assignment	Read widely, interrelate, organise, apply, copy
Objective test	
Multiple choice	Recognition, strategy, comprehension, coverage
Ordered outcome	Hierarchies of understanding
Performance assessment	
Practicum	Skills needed in real life
Seminar, Presentation	Communication skills
Critical incidents	Reflection, application, sense of relevance
Project	Application, research skills
Reflective journal	Reflection, application, sense of relevance
Case study, problems	Application, professional skills
Portfolio	Reflection, creativity, unintended outcomes
Rapid assessments (large class)	
Concept Maps	Coverage, relationships
Venn diagrams	Relationships
Three minute essay	Level of understanding, sense of relevance
Gobbets	Realising the importance of significant detail
Short answer	Recall units of information, coverage
Letter-to-a-friend	Holistic understanding, application, reflection
Cloze	Comprehension of main idea

The educator has a host of tools that can be used to direct learning, but lack of exposure to different methods of evaluation also restricts student learning. Stein (2000) identifies some key tools and techniques that can be used in the classroom in order to teach students to reflect critically.

Table III.7 Critical reflection: tools and techniques (Smith, 2011a; Stein, 2000)

Initiative	Description	Key Authors
Diaries	"diary keeping or journaling is a popular means of recording events and reactions to events"	Heath 1998; Orem 1997
Memos, notes	"Use of memos and notes to record learning experiences"	Dowling, 2006; Smith, 2008
Reflective summaries	Tabulation of lists or reflective themes	(Alvesson and Sköldberg, 2000)
Diagrammatic Representation	Concept maps, mind maps, conceptual diagrams	(Eppler and Burkhard, 2007)
Action Learning Groups	"Action learning group used small group processes to share experiences, personal insights, and ideas"	Williamson 1997; Graham 1995

Initiative	Description	Key Authors
Autobiographical stories	"Studying one's own life in order to make sense of it"	(Brookfield, 1995)
Sketching	Drawing of concepts and ideas pictorially	Willis 1999
Pictures/Images	Use of models and charts to illustrate concepts	Stronach, 2007
Videoing/Film	Use of video to evaluate and guide learning	Pauwels, 2006
Reflective interviews	Group, peer or faculty reflections	Bolam, 2003
Reflexivity	"The need for the practitioner to be aware of her own processes in the development and construction of this interpretation"	Bright 1996
Critical Incidents	"Having learners select critical incidents arising from the practice environment"	Hunt 1996; Flanagan, 1954
Peer/Group work	"The use of groups is essential if implicit assumptions and practices are to become visible"	(Brookfield, 1998)
PBL	Problem-based learning	Fyrenius, 2007)
Service Learning	"Service user involvement in teaching"	Felton and Stickley, 2004)
Guided reflection	"Reflective practices help to connect prior experience to new content"	Imel 1999
Outcomes	"using reflection results in a journey for which neither the instructor nor the learner can chart or predict the outcome"	
Safe environment	"Creating a safe and structured climate does seem to increase learner willingness to share"	Haddock 1997

The value of reflective diaries and/or learning portfolios as an alternative means of evaluating student learning should also not be underestimated.

III.5.vi Models for reflection

There are numerous frameworks or models for assessing reflective practices (Kember et al., 2008; Kember et al., 1999; Kitchenham and Chasteauneuf, 2010), yet guiding reflective processes in the academic sphere is less prevalent. One such a model is the DEAL model from Paul and Elder (2001:5). The DEAL model examines specific questions around 1. Describing the learning experience in terms of *what* happened, *where* it happened, *who* were involved, *when* it occurred, and *why* it happened, 2. Examining the learning experience in terms of the intended goals, and 3. Articulating the learning in terms of *what* was learned, *how* it was learned and *why* it is important.

Another model for guiding reflections is that of Race (2002) who introduces the 5Ws and Hs into a reflective framework that suggest that one reflects on a number of questions namely (Race, 2002):

> "What worked really well for you?"
>
> "Why do you now think this worked well for you?"
>
> "What are you going to do as a result of this having worked well for you?"

The author provides a further 'set' of questions based entirely on the 5Ws and Hs, a significance that will be explored in the next chapter.

> "In particular, my tenet in this article is that reflection can best be evidenced by answering questions. Just about all good questions have the letter 'w' in the key interrogative word - *who, what, when, where, why and how*, for example" (Race, 2002).

The value of such a framework is that it guides students' reflections towards thinking of previously unconsidered aspects of their experiences.

III.5.vii Reflective framework

In the process of uncovering what 'who, what, when, where, why and how' means in terms of reflection, I developed an interim framework initially derived from Race's model (2002) which I presented to my students in 2012.

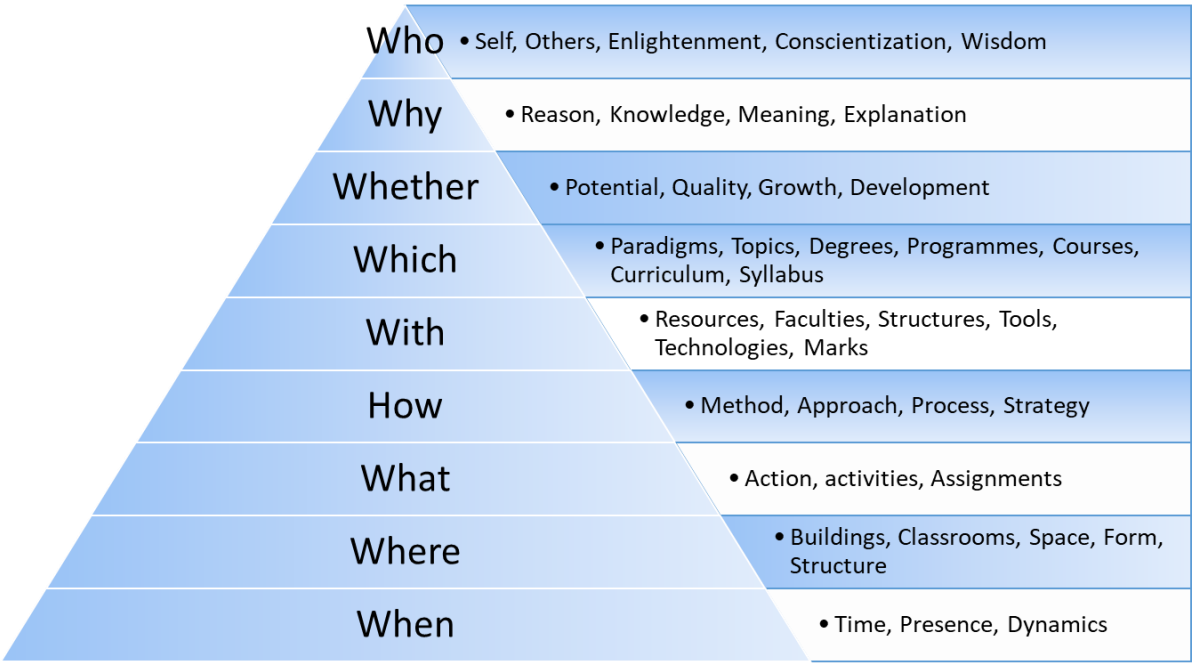

Figure III.6 Reflection Pyramid

I provided the students with this framework in a non-prescriptive manner in line with Aronson's (2011) tips, and allowed them to use it to structure their own reflections as they saw fit. I did find that directing reflection to specific elements is a too rigid process, and greater freedom should be allowed; however, as a framework for analysing reflections, it is incredibly valuable as will be demonstrated in this dissertation.

III.5.viii Assessing students' reflections

Assessing students' reflections becomes important in an educational system that is assessment driven, as well as to encourage and promote reflection as a valuable tool for students (and educators) to improve their practices and for teachers to be able to assess their students' level of growth and reflection. Building on Wellington and Austin (1996), Kember et al. (1999:369) developed a four-level coding scheme with which to evaluate students (and likewise for lecturers to evaluate their own) reflective writing.

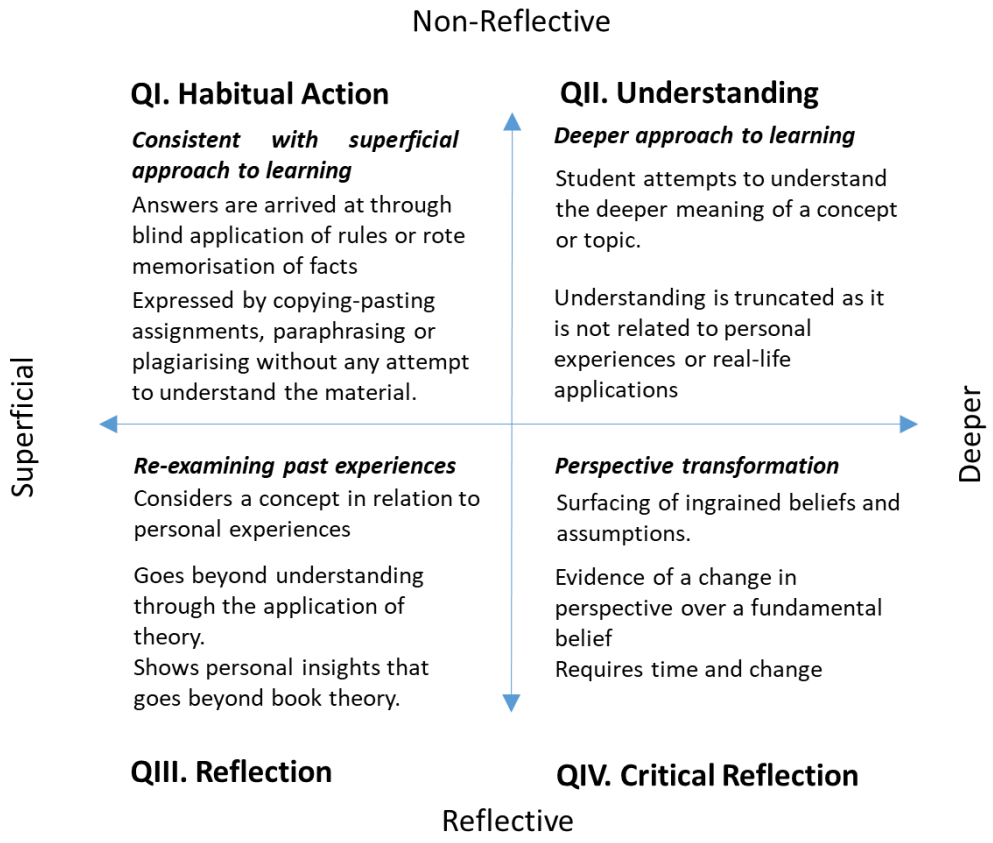

Figure III.7 Assessing students' reflections (Kember et al., 2008:373–74)

Kember[21] suggests that the highest level of reflection in a student's paper is graded as follows, with pluses and minuses indicating intermediate cases e.g. A=critical reflection, B=Reflection, C=Understanding, D=Non-reflective. This coding scheme can be used as an alternative to other taxonomies and can also be used for research and course evaluation purposes to establish at what level students are reflecting. What

[21] Although there is substantial overlap between these two schemes, I will maintain the reduced scheme of four categories of Kember at this point, for the sake of accurately representing their scheme as it stood at the time.

is of interest in terms of 'critical reflection' is that Kember claims that it is highly unlikely to observe students reflecting at the critical level. Reflection at this level is normally indicated by a 'reconstruction' of perspectives into a new framework.

III.6 Chapter summary

In this Chapter, I explored my secondary question of teaching students how to learn and do research. I also reviewed the literature on theories of learning, student-led learning and self-directed learning and how these inform teaching students how to learn for themselves. In the Section 3, I explored active learning approaches such as blended learning, case-based learning, action-learning, problem-based learning, inquiry-based learning and research-based learning. These are all active strategies that can be used in the classroom to foster learning, as opposed to teaching strategies such as lecture-based learning. In Section 4, I reviewed the literature on experiential learning and how we learn from our experiences. In Section 5, I reviewed the literature on the central role of reflection and critical reflection in fostering self-regulated learning. In the final section of chapter 3, I explored possible approaches for teaching and assessing critical reflection in support of my research (RQ2) on how to teach my students to be critically reflective.

III.6.i Conclusion

Teaching students how to learn (Q6), do research (Q5) in a practical and fun way (Q4), be critically reflective (Q3), and participate in class (Q2) goes beyond behaviourism and cognitivism to incorporate aspects of constructivism, humanism and connectivism. It is constructivist because learning to do research occurs in a community of practice, and because the locus of learning lies with the student, and humanist because the learner and learning are placed at the centre of the learning experience, and the aim of my research questions is to foster self-direction and independence. The aim is to free the learner from the constraints of the educational system to progress to self-directed learning and connectivism through the use of technology. The emphasis in the research curriculum is on issues that are important to the learner (in this case it was the use of mobile technologies by students). Finally, it is connectivist because it sees the social construction of knowledge and interaction as central to learning in the 21st century.

To explore how such a blended epistemology might engender self-directed learners, the first part of the chapter reviewed the essence of situated learning,

student-led learning, adult and lifelong learning and self-directed learning. In the second part of this chapter, a review of active learning approaches was done. The aim of this review was to explore alternative strategies for teaching students to learn and inquire. Central to the strategy that was adopted in this dissertation is a research-based approach to learning. RBL encompasses many of the aspects of project-based, problem-based, question-based, inquiry-based and collaborative learning in an authentic work-integrated environment. At the heart of 'doing' lies experience, and at the heart of self-regulated learning, lies reflection. The next two sections reviewed the literature on experiential learning and how our frames of reference may limit the quality learning that we derive from these experiences. The penultimate section reviews the role of critical reflection in terms of transformative learning and how we can essentially 'learn' how to learn. The final section in this chapter explores how students can be taught how to be critically reflective practioners.

Teaching adults to learn involves developing their self-directing capabilities. This can be fostered through a process of critical reflection that allows them to question their own self-limiting beliefs. Fostering such reflections is not without its own problems; as the liberated student questions not only his own development but that of the circumstances for such actions. Teaching students how to critically reflect involves a process of arranging a stimulus that interrupts or brings into question the status-quo. To assist in such a process, many different tools, techniques and frameworks can be used. In my research, such a framework for reflection was developed and introduced to the students in the class as a tool to use in their own reflective process of teaching themselves how to learn.

"Education is about the process of 'travelling' on an educational journey – not about 'arriving' at a destination." (McKernan, 2010:57)

Chapter IV Learning how to teach

> "Practitioners themselves are best positioned to be educational researchers – doing practical philosophy that aims to evaluate their own individual and collective praxis in the light of tradition and in response to current and emerging conditions and circumstances" (Kemmis, 2010:20).

TEACHING is a moral endeavour, and no recourse to theory is going to aid in the execution of such a duty. This view is consistent with the Greek concept of phronēsis, which is the moral disposition to do what is right depending on the circumstances. This is, however, not the only view towards education as a discipline. Two others, namely a technical and a practical, pervade our views on education.

(Carr and Kemmis, 1986).

IV.1 Introduction

Teaching students how to learn and developing them to become critically reflective practitioners in IS research required me as a novice educator both to learn how to teach and become critically reflective myself. In this chapter, I continue to review the literature on the second half of the teaching/learning duality that informs the primary research question of Q1. How does one learn to teach oneself in higher education?

I will provide a broad overview of teaching in higher education and question the wisdom that most educators are self-taught and how such a process may unfold. In the first section of this chapter, I overview the different orientations to teaching. I then review the literature on teaching as a profession and how academics learn to teach. Having established that most academics in higher education in SA are self-taught, I examine a possible process for professors to teach themselves. Like any discipline, learning how to teach is a practical activity that progresses through stages. I use the (Dreyfuss and Dreyfus, 1980) stages of expertise as a framework within which to examine the development of novice lecturers on their journey to expertise and apply these to my own development as a lecturer.

Firstly, I examine some methodologies for researching my own teaching. In education, these are referred to as curriculum action research, reflective practitioner, action science or the scholarship of teaching and learning. In this section, I also argue why scholarly teaching is more important than the scholarship of teaching and learning (SoTL). In conclusion, I advocate an approach of reflective practice (Schön, 1983) and curriculum action research as ways to "research my own teaching" and thus learn how to teach.

IV.2Teaching in HEI

The image that comes to mind when one discusses teaching in higher education is that of a Professor standing in front of a class, explicating the latest theories or research in a highly specialised field. Required skills are explaining, presenting information, generating interest and lecture preparation (Brown and Madeleine Atkins, 1993:19). On the surface, there is not much to it that most people cannot do. Teaching, however, does not occur in isolation, and therefore learning also needs to be considered as the other side of the coin. In this scenario, a student would attend classes, listen to professors, make notes, read up on textbooks and related materials, study and write exams. The basic tenets of this approach dates back to Greeks of the fifth century BC (Brown and Madeleine Atkins, 1993:7). So, not much has changed since then…or has it?

As early as the 1970's, lecturers were struggling to cope with overcrowded classrooms, rapidly expanding subjects, ever higher degrees of specialisation, the advent of modern technologies for teaching, and complaints from under-prepared students who lacked interest in their subjects (Beard, 1970:14).

> "this is hardly surprising for until recently, the majority of teachers in higher education have not been offered any courses on teaching methods and those they now have are usually too brief to be really effective" (Beard, 1970).

In effect, lecturers were ill equipped to deal with the modern challenges of teaching in higher education with the blunt tool that they had inherited, referred to as lecturing. As indicated in the previous chapter, there are many different approaches to learning that can be used to stimulate active engagement and participation in the classroom. So, what makes a good lecturer or what makes for good education? Is it the lecturer with the best methods for teaching, or the most charismatic, or the one who

makes the subject the most interesting? Like most practices, effective teaching is both an art and a science. The science of teaching is referred to as pedagogy or educational science, and the art of teaching as teaching styles (Jarvis, 2002a). Some of these aspects will be explored further in this chapter.

Effective teaching requires the teacher to ensure "a safe and stimulating environment", "effective lesson organisation", "clear and structured instruction", intensifying the lesson and activating students", "adapting instruction to student differences", and "teaching students thinking and learning strategies" (de Vries et al., 2015:464). Effective teaching needs to be differentiated from good teaching and teaching in general. Teaching is considered to be "the act or process of imparting knowledge or skills to another" (Teaching M-W, 2017). Effective teaching means that "identifiable and observable teacher behaviour lead to enhanced student achievement" (de Vries et al., 2015:465). Good teaching implies "morally defensible and sound principles of instructional practice" (de Vries et al., 2015:465). In essence, effective teaching means "doing things right" so that students achieve good grades. Good teaching requires "doing the right thing" based on sound teaching methods and practices.

A prime differentiating aspect between teaching and good teaching is the critical reflective ability of the educator to both reflect on and improve own practice. No theoretical training can support such an educator in the classroom when confronted with new and challenging problems. Reflective practice has long been considered the preferred approach for improving one's teaching practice in higher education (Barnett, 1997). As such it is considered to be paramount to good teaching (Leibowitz et al., 2017:60). The outline of such a reflective practice is presented in this chapter in Section 6.

IV.2.i Orientations towards teaching

An educator's approach to teaching in HEI reflects their orientation to knowledge and learning. Carr and Kemmis (1986:129) outline three primary orientations to teaching, namely the *technical*, *practical* and the *critical* view of teaching.

The *technical view* of teaching sees it as a means to an end i.e. the educator is a function in a process that is responsible for the 'delivery' of the curriculum. From such a view, educators' concerns are on how best to organise resources and deliver the materials. Central to improving one's practice in the technical sphere is the concept of

effective teaching (de Vries et al., 2015). This positions teaching as a craft, the teacher as a craftsman and education as the product of schooling (Carr and Kemmis, 1986:35).

> "positivistic conceptions of explanation and prediction imply that theory relates to practice through a process of technical control" (Carr and Kemmis, 1986:83).

Teaching *as a practice* considers education essentially as a process or an activity (Carr and Kemmis, 1986:36). Improving one's practices thus involves making better decisions in the classroom (using professional judgement) on what to do or when to do it. These choices are themselves modified by previous choices as well as future possibilities. Educators who have this orientation pursue different aims in the classroom, have a wider view of the subject under discussion and are prepared to change direction to pursue other ideas in order to 'engage' students better in the learning process.

> "Interpretive methods of validating knowledge entail that theory affects practice by exposing the theoretical context that defines practice to self-reflection" (Carr and Kemmis, 1986:83).

A *critical orientation* to teaching comes from an awareness that education is historically constituted and that education has social consequences, so it is essentially political (Carr and Kemmis, 1986:39). In this way, teaching is a moral obligation that considers the role of the educator that has a strong influence on the moral character and behaviour of his students. Choices from this orientation revolve around the principle that all educational actions are problematic, and that it is the role of the educator to continuously question and recreate aspects such as the purpose, social environment, teaching medium, kinds of knowledge and materials as well as issues of control and direction in the classroom. The primary means for such actions are critical praxis (Schubert, n.d.). The primary function of the critical orientation is to emancipate the student from his/her unconscious beliefs.

> "It must provide ways of distinguishing ideologically distorted interpretations from those that are not. It must also provide some view of how any distorted self-understanding is to be overcome" (Carr and Kemmis, 1986:129).

In the sphere of educational action, the technical and practical views have their place; however, their sphere of influence is significantly constrained by not considering the premises on which they are built. Therefore, Carr and Kemmis

(1986:129) argue that these approaches are inadequate for a critical educational science, and that such an critical orientation is essential to an educational system that takes responsibility for its own actions. The only way that such changes can occur in higher education is if educators study their own practices from a critical perspective.

IV.2.ii Theories of teaching

Due to the practical nature of teaching, teaching theories are either directed towards practice or towards theories of learning such as cognitivism, constructivism and behaviourism. Theories in education should not be conceived in the same way as theories in science, as they serve two different purposes (Siegel, Phillips and Callan, 2018). Theories of teaching do not hold universal truths as to how a teacher should teach a course but merely act as containers for different approaches to teaching or to different theorists in education.

Teaching theories may be broadly classified into normative and descriptive theories (Chaudhary, 2013). Normative theories imply the elaboration of educational norms, standards and goals. Examples of normative theories are theories that are based on educational philosophies, such as perrenialism, progressivism, essentialism, critical pedagogy and democratic education. Other examples are curriculum theories which describe the norms around what constitute curriculum. Descriptive theories describe processes in education such as curriculum or instructional theory. Curriculum theory describes what is taught and what is not, whereas instructional theory focuses on the methods of instructing.

For Carr (2005:343) "any 'theory' taught by educational theorists is inadequate and incomplete unless and until it enables professional practitioners (including those who practice educational theorising) to make progress in pursuing excellence in their practice." This thesis aligns with the critical theory of adult learning and education (Mezirow, 1981) as represented by Kitchenham (2008) and based on the critical theories of Habermas (1972) and the critical pedagogies of Freire (1998) together with the principles of phronesis and praxis of Aristotle as will be outlined in the following chapter.

IV.2.iii Methods of teaching

Teaching methods "focus on the techniques that teachers employ; they are ways of doing it – processes, techniques" (Jarvis, 2002a:24). Because of the predominant

emphasis on the technical view of teaching in higher education, teaching methods are mainly directed at the effective transmission of information (didactics) with the aid of technology. These methods emphasise imparting information, transmitting knowledge, facilitating learning and changing students' conceptions (Samuelowicz and Bain, 2001). Teachers, from this perspective, see teaching as central to education and the teacher's role as pivotal in the process. An instructional model prevails and students are seen as "passive" recipients of knowledge. Teaching emphasises cognitivist principles, the curriculum is fixed, and as a result of the teaching approach dependency of learners is encouraged and critical thinking discouraged (Carnell, 2007). Successful teaching is seen as effective teaching in meeting the course outcomes with learners making good grades. Lecturers are evaluated on effective teaching strategies, pass rates and throughput rates using teaching observations and student feedback questionnaires.

As student-centred approaches became more prevalent, facilitative methods are more widely used. Facilitative methods were promoted by educators such as Rogers (1969). These methods emphasise supporting student learning (Samuelowicz and Bain, 1992), negotiating meaning and encouraging knowledge creation (Samuelowicz and Bain, 2001). A constructivist paradigm prevails and the construction of meaning by the learner becomes central. Collaborative approaches are used, and the teacher becomes a facilitator of learning. This approach encourages effective learning strategies by the student as well as collaborative skills, and learners take responsibility for their own learning. Teaching practices are evaluated as good teaching and represented by means of teaching philosophies and portfolios. Good practices are shared amongst educators and published at conferences and in journals.

The role of teaching from a critical orientation recognises its practical role, i.e. the aim of theory from a critical perspective is not merely to 'understand' the practical situation, but to change it in practice. This has much in keeping with the 'emancipatory' approach of Habermas (1984), where the role of the educator is to organise action so that the constraints that limit action can be taken into account. This is actualised as 'critically emancipatory action research' or the way that action can be critically understood and re-organised in order to reduce the systematic distortions that constrain it (Carr and Kemmis, 1986:152). What they essentially advocate is the *self-study and reflective practice of educators by educators* for educators.

> "The materialist doctrine that men are products of circumstances and upbringing and that, therefore, changed men are products of other circumstances and changed upbringing, forgets that it is men that change circumstances and the educator must himself be educated" (Marx in Carr and Kemmis, 1986:161).

The adoption of "educator self-development", although significant, is progressing very slowly (Whitehead, 2000). One way of accelerating such practices is through the formalisation of teaching as a discipline (Whitehead, 2000:99–102).

IV.2.iv Teaching Styles

The experience that the learner has of a teacher in the classroom has more to do with his teaching style than with his methods of teaching (Jarvis, 2002a), although these two are inextricably linked. Teaching style refers to the "'manner of expression' rather than the process of doing" (Jarvis, 2002a:24). In simple terms, manner refers to 'how' one teaches, and process refers to 'what' one does in the classroom. As Jarvis (2002a:24) emphasises, "teaching methods are about the science of teaching whereas teaching styles are about the art of teaching".

Teaching style refers as much to *how* teachers conduct themselves in the classroom and outside (character or professional/bedside manner) as to *how* they organise and conduct their teaching. Some insights from management styles (McGregor, 1966) suggest that teachers who perceive students as lazy, unmotivated or uninterested will use behaviourist techniques to coax or coerce them to achieve their intended outcomes (Theory X). Teachers who see students as independent, responsible adults (Theory Y) will use developmental strategies to further them as individuals. Lippitt and White (1962) identify a range of styles that leaders may exhibit in a group. These styles range from authoritarian to laissez-faire to democratic; where authoritarian teachers create dependent students, laissez-faire teachers achieve little work, and democratic teachers strive for self-directed learners who work well together.

Other styles that have been indicated in the literature range from formal/ informal, to friendly/distant, humorous/dry, and confident/withdrawn (Jarvis, 2002a:28). Style makes each teacher unique and has a large influence on how teachers teach and how students learn. As Palmer (1998:10) illustrates, "good teaching cannot be reduced to technique; good teaching comes from the identity and integrity of the teacher".

IV.2.v Approaches to Teaching in HEI

Most of the modern approaches to teaching are contrasted with didactics of which lecturing is the most prevalent. Again, teaching approaches follow the orientation to teaching as well as teachers' styles. Didactic teaching has its roots in Platonic dialogues where epistemic certainty or absolutes formed the basis of knowledge, and the teacher's role was to establish these in the minds of his pupils (Brownhill, 2002). This approach was a backlash against the sophists of the time who used their skills in rhetoric in order to advance any particular 'version' of the truth that they deemed fit. This approach is evident in 'authoritarian' didactic approaches (Griffin, 2002:57–58), where the teacher is the 1. *social authority* in the classroom i.e. (s)he manages the classroom by vestige of the authority or position that (s)he is placed in, 2. the *subject authority* where the teacher is the expert in the subject that is being taught by virtue of education, research or experience and 3. *professional authority* as a lecturer by virtue of expertise in pedagogy and ability to communicate as well as use related technology and tools for lecturing.

Democratic (non-autocratic) approaches are historically derived from the Socratic dialogues, where Socrates' injunction was that he was ignorant, and by means of questioning aimed to establish a version of truth in the student (Brownhill, 2002). Even though the teacher is invested with some of the authority of the institution, he expresses his freedom to teach in a way that fosters critical thinking and self-reflection in the student. The teacher sets the agenda as well as the style of the classroom discussions. The aim of the approach is "ultimately concerned not so much with the immediate task in hand, but with an attitude towards life" (Brownhill, 2002:72). The teacher sets the (controversial) topic that has no clear answer, and by means of facilitation (careful listening and drawing out students' viewpoints), engenders a process of mutual inquiry and dialogue. This method, in some form or another has survived the interceding 2300 years and "provides us with a number of ideas about how to lead students to self-reflection by self-analysis, the importance of creativity in groups, how to get discussions started by reference to the students' own experiences and interests…" (Brownhill, 2002:74).

A more recent teaching approach that builds on the Socratic approach is the *facilitation* of learning approach. Facilitation allows the teacher to 'draw out' the wisdom inherent in a learner. It integrates constructivist and humanist pedagogies

with experiential learning by helping learners to realise their capacity to learn (Gregory, 2002).

> "The internal homogeneity between progressive education, humanistic education and experiential learning lies in the belief in the active learner as one who has personal agency in that he or she is self-directing, intrinsically curious and motivated to learn" (Gregory, 2002:81).

Facilitators act as guides to help students explore their own self-knowledge in context. The facilitator aims towards: 1. self-direction, 2. informed judgements, 3. self-development, 4. emotional competence, 5. self-awareness, and 6. celebration of self and others (Heron, 2001:15–16). Facilitation as a teaching approach (Rogers, 1983) requires teachers to 1. Set the initial mood or climate, 2. Elicit individual and group purposes, 3. Be a flexible resource, 4. Responding to expressions and emotional attitudes, 5. Take the initiative to share personal feelings and thoughts with the group, 5. Recognise and accept their own limitations. Facilitators need to be aware that they may uncover deep-seated beliefs that limit learning, and therefore need to be sensitive in creating an environment where learners feel safe to share and participate in the group (Gregory, 2002:90). The facilitator also needs to be sensitive to issues of power and control, especially considering his/her position of authority. Lastly, the facilitator needs to be aware that it exposes students to a new way of learning to which they are not accustomed.

A final approach to 'teaching' that is used both for professional development of teachers as well as work-integrated learning is that of *mentoring*. The concept of mentoring was first recalled in the Odyssey, where Homer documents the development of his student Telemachus by Mentor (Nicholls, 2002). Nichols quotes Carmin (1993:10-11) as claiming that "Mentoring is a complex, interactive process, occurring between individuals of differing levels of experience and expertise which incorporates interpersonal or psychosocial development, career and/or educational development, and socialisation functions into the relationship" (Nicholls 2002:134).

Mentoring is seen as an important approach in the development of learning and for making professional knowledge explicit. It is seen as an approach "whereby an individual may learn and understand the ethics, rules and skills of a given community…for professional development and learning…for encouraging systematic critical reflection…as a tool to help mentors articulate (tacit) skills and knowledge"

(Nicholls, 2002:142). A mentor is responsible for a number of functions such as teaching, sponsoring, encouraging, counselling and befriending (Anderson and Shannon, 1988). Mentoring needs to occur in a relationship of ongoing caring/nurturing and mutual trust. Through experience, the mentee will model and internalise the values and techniques of the mentor and eventually become an independent self-directed learner (Rothera, Howkins and Hendry, 1991). The literature identifies three broad models of mentoring (Nicholls, 2002:137–38) namely, the apprenticeship, competency and reflective models.

The *apprenticeship model* is the method of teaching students' practical skills through emulation of experienced practitioners under guidance in real-world situations. This is a natural form of learning in which parents and specialists pass on skills such as how to read, write, speak, make shoes or clothes (Collins, 2006). Learners learn to emulate the expert through a process of observation, coaching and practice. Educationally, it is also referred to as cognitive apprenticeship which emphasises the development of cognitive skills such as reading and writing in context (Brown, Collins and Newman, 1989). It is seen as a particularly useful approach of mentoring in technologically rich authentic learning environments (Woolley and Jarvis, 2007).

In the *competency model* a mentor coaches the learner on specific professional competencies and/or skills as defined by professional bodies or organisations that are needed in the workplace. A competency-based curriculum focusses on what learners need to *do* as opposed to contemporary curriculum that emphasises what they need to *know* (Kabita and Ji, 2017). The emphasis in the curriculum is thus on *experiential learning* and not theoretical learning. The competency model is particularly suited to developing students' reading, writing, research and higher-order critical thinking skills (Wannapiroon, 2014). Competency outcomes can be derived from what is referred to as graduate attributes (Manathunga, Lant and Mellick, 2007) or 21st century skills (Saavedra and Opfer, 2012).

Reflective mentoring is a model of mentoring where the mentor moves from an instructional mode to a co-inquirer mode, where more equal and open relationships are established (Nicholls, 2002). Establishing a reflective practice and fostering critical reflection is core to this thesis and will be examined in greater detail later in this chapter.

IV.2.vi Instructional Design

Instructional design (ID) is an approach to developing education programs in a systematic way and is a task that is frequently expected of educators without the requisite training and awareness of its implications for learning. ID is based on general systems theory and systems analysis as a way to develop instructional interventions (Gustafson and Branch, 2002). Although there are a number of models for designing and developing instructional material (Gustafson and Branch, 1997), the most popular model is the ADDIE model. The ADDIE model follows the typical Systems Development Lifecycle of Analyse, Design, Develop and Implement. Analysis involves determining learning needs and defining learning goals. Design involves the setting of objectives in measurable terms, specifying learning activities and requisite resources. Development includes preparing student and instructor material, and implementation involves the delivering of the instruction in the setting for which it was intended (Gustafson and Branch, 2002:19).

> "Teachers have a duty to discard objectives and content that does not perform as a result of evaluation" (McKernan, 2010:57)

Instructional design is widely used as a method of instructional and/or curriculum design and it is mostly expected that educators at SAU perform some aspect of ID. Course objectives and outcomes are mostly prespecified in faculty calendars, however the selection and development as well as assessment of outcomes are left mostly to lecturers. Some of the critiques against ID are that it utilises behaviouralism as its primary learning approach. Modern developments of ID have however been extended to incorporate cognitivism and collaborative learning (Gagne et al., 2005). Some of the major criticism against ID is the use of Instructional Objectives to pre-specify learning outcomes (McKernan, 2010). These critiques are summarised as:

1. "Objectives do not exist in reality" – they are merely representations that may lull educators into a sense of coherence and order where none exist.
2. "Educators are asked to accept objectives uncritically" – Objectives are pre-defined by governing bodies and professional organisations in order to standardise curricula and outcomes. Teachers have minimal control in the process and implement these objectives uncritically despite contrary evidence as to their efficacy.

3. “Objectives reduce education to an instrumental-utilitarian activity: taking a means to an end”: The objectives model emphasises behaviourist approaches at the expense of other learning approaches such as humanism.
4. “Breaking education down into targets is destructive of the epistemology of disciplines/subjects”: Breaking knowledge into transmittable pieces of information does not reflect the internal logic of the discipline and elevates educators to masters of defined fields as opposed to co-learners of new knowledge.
5. “Objectives are often stated as low-level trivial recall items”: True learning that is achieved through inquiry leads to unpredictable outcomes and unique experiences that cannot be pre-specified, leaving as measurable only those objectives that can be measured.
6. “Predetermination prevents ‘teachable’ moments and pursuing inquiries thrown up by the teaching/learning process”: Pre-determining content and outcomes limits the pursuit of true knowledge for the sake of itself.
7. “It is not democratic to set targets in advance of instruction”: Excluding professionals such as teachers and the students’ needs from the objectives is autocratic and denies them the freedom to participate in setting the agenda for content and discussions.
8. “Objectives often set the agenda for hegemonic group interests to be served”: Critical educators are compelled to examine oppressive and hegemonic practices so that students are presented with equal opportunities to learn what is in their own interest.
9. “Objectives represent poor models of teacher-student interaction”: The formulation of objectives by others predetermines the destination and limits the inquiry and discovery of (new) knowledge by students.
10. “Empirically speaking, teachers do not plan by starting the curriculum with objectives”: The starting point for most educators is on *what* they need to teach and then move on to *how* they are going to teach it and rarely start with *why* this knowledge is important.
11. “The limits of discourse act as a constraint on objectives”: Instead of recalling facts, students should be encouraged to express aesthetic and peculiar characteristics.

12. "Objectives are often perceived as having equal value when in fact some are of greater importance and of varying classificational significance": Lower objectives emphasise training and higher-order objectives emphasise education. It is more important to emphasise the construction of knowledge than the instruction of information.
13. "Unanticipated outcomes are always being achieved and sometimes they are the most valuable results": Objectives shape students in achieving what is measured and no more. This limits new knowledge and exploration in education.

Instructional design, the pre-ordained setting of instructional objectives, and the evaluation of measurable cognitive objectives limit both the freedom that academics have in determining the discourse in the classroom as well as the explorations and experiences that typical knowledge acquisition can offer students.

IV.2.vii Teaching strategies

Teaching strategies are "specific actions which are developed for the purpose of teaching a particular type of content" (Močinić, 2012:99). They are also referred to as learning activities, teaching methods, approaches, procedures or techniques (Močinić, 2012) although these terms may refer to broader or narrower concepts of teaching. Teaching strategies are dependent on the lecturer's orientation to teaching, the learners' learning styles, the lecturer's method and style of teaching, approach to teaching as well as the subject that is being taught. For a comprehensive taxonomy of teaching strategies and their objectives, see Beck (2001:2–3).

Some teaching strategies that students prefer are highlighted by Močinić (2012) as field classes, trips and excursions (56%), discussions (expressions of personal attitudes) (50%), workshops (46%), debates (two or more groups) (36%), interactive lessons (35%), demonstrations with exercise (35%), guided conversation (30%), showing video material (28%), project teaching (23%), frontal teaching (19%), case studies (17%), problem-based teaching (16%), brainstorming (16%), debates in small groups (13%), distance education (13%), guided practical exercises (13%), integrated or interdisciplinary teaching (12%), role play (12%), didactic games (9%), or programmed teaching (8%). Of course, these techniques depend on the material that is being taught, the size of the group, as well as the lecturer's effectiveness in using them; however, they give a broad overview for the purposes of this literature review on

the kinds of techniques that a lecturer can use in the classroom in order to facilitate active learning. Teaching techniques to facilitate an inquiry/research based learning and critical thinking skills need to promote active learning, be problem-based, using situated or real-life problems and facilitate interaction amongst students (Dam and Volman, 2004; Wannapiroon, 2014).

IV.3 Teaching in the disciplines

Educators in higher education are trained in a specific discipline and acquire their teaching knowledge along the way. There are thus questions as to whether education should be discipline specific i.e. that it needs discipline specialists with pedagogical knowledge, or whether techniques and practices of education in general can be applied to a discipline.

Berthiaume (2009) argues that discipline-specific pedagogical knowledge is important in the disciplines, and that pedagogical knowledge developed through induction programmes or accredited training programs may be too generic and not integrated with the disciplinary expertise i.e. we need teachers with specific pedagogical knowledge on how to teach his discipline. Essentially, he is arguing for "Reconciling knowing *how* to teach with knowing *what* to teach".

Three components of teaching appear to be important in general educational knowledge (Berthiaume, 2009:216) i.e. 1. the body of knowledge on teaching, 2. the teacher's beliefs about teaching and 3. the teacher's goals towards teaching. In discipline-specific pedagogy, two characteristics appear to be affect disciplinary teaching (Berthiaume, 2009:216), namely 1. the socio-cultural characteristics of the discipline and 2. the epistemological structures in the discipline. The link between these two can be found in the teacher's own personal epistemology i.e. the teacher's personal beliefs about how knowledge is constituted. This link provides the connection between a teacher's general beliefs about teaching and the specific requirements/characteristics of teaching in the discipline.

IV.3.i Teaching in IS

The core of the IS discipline has been a topic of investigation since its inception (Banville and Landry, 1989; Hassan, 2010). These investigations question the field of MIS as a scientific field and more specifically the monistic view of science as it applies to IS. For example, Banville and Landry (1989) found that the MIS field is a

fragmented adhocracy, i.e. it is pluralistic in terms of its research and its vocational characteristics. This means that IS is both influenced by other disciplines in terms of theories and methods as well as influencing other disciplines. This overt 'borrowing' of theories and methods from other fields is criticised by some (Markus and Saunders, 2007) and the development of IS specific theories and methods is advocated (Hassan, 2010).

The multi-disciplinary nature of IS is recognised due to both this broad influence or 'borrowings' from other disciplines, as well as the 'exporting' of IS concepts and theories to other disciplines. A good example would be the Technology Adoption Model (TAM) and Unified Theory of Adoption and Use of Technology (UTAUT) that was developed from theories of psychology (Theories of reasoned Action) and are now being used in many diverse fields to determine adoption of new technologies or processes (Venkatesh et al., 2016; Venkatesh, Thong and Xu, 2012). On the other end of the spectrum, some research recognises the multi-paradigmatic (van Zyl, 2015), multi-theoretical (Alter, 2017), multi-method (Bandara, Fernandez and Rowlands, 2012), multi-disciplinary (Hassan, 2010) or trans-disciplinary nature of IS (Galliers, 2003).

> "While it is not the intention here to debate the merits of didactic approaches, the instantiation of disciplinary kingdoms (not least in the Information Systems) remains problematic" (van Zyl, 2015:12)

One way to contend with this multi-paradigmatic, multi-disciplinary nature of IS is to establish personalised learning environments that develop autonomous self-directed students (van Zyl, 2015) who are able to bridge these gaps and contribute to the discipline through independent learning and research (Spronken-Smith and Walker, 2010). This would require a change from teaching-centred strategies to learner-centred teaching (Saulnier et al., 2008) and from disciplinary teaching to research-based teaching.

IV.3.ii Teaching of Research in IS

The rapid expansion of IS into other fields, as well as growth of the discipline's core properties have required more frequent changes in both the curriculum and courses in HEI (Apigian and Gambill, 2009). Every year new technologies such iPads, or tablets, wearable devices, community informatics and virtual reality (Mikropoulos and Natsis, 2011) are added to this growth in the field that requires different management

and teaching approaches (Bytheway, Bladergroen and Chigona, 2012) as well as changes in the curriculum. This also does not consider the growth in new theories and methods in IS. This rapid growth in the field can be managed either through broadening and expanding the curriculum, or narrower areas of specialisation such as IS security, or through preparing students to adapt and change to this growing field by teaching them how to research in IS. As indicated before, this aspect of IS is lacking in the model IS curricula, but its importance does not go unrecognised. Viewing undergraduate IS students as producers of knowledge and not merely recipients, requires a change in the way that we facilitate learning and RUGC (Davidson, 2011). One of the earlier scholars to recognise this change in teaching in IS was Roode (Roode, 1993), who advocated a process-based approach to teaching research in IS. This approach engaged with the diverse ontological nature of IS as a discipline and proposed a Question-Based framework for teaching students to critically reflect on the paradigms of their research questions.

Table IV.1 Generic research questions in IS (Roode, 1993:22)

Generic Research Questions		
	What is?	
How does?-->	Research problem Teaching situation IS Development	**←Why is?**
	How should?	

This framework not only allows students to effectively direct their research efforts, but for educators to direct their teaching approach and strategies in order to explore these questions further. This allows for a reflective question-based strategy for preparing students for research work in IS or any other field. Another benefit indicated by Roode (1993) is that the student is moved from the 'one correct answer' or epistemic certainty paradigm to recognising that there are different perspectives to any particular problem and are able to extract a 'rich set of information' on any problem.

IV.3.iii Introducing research in the curriculum

A direct way to enrol students into a research culture is to introduce a practical research project in the undergraduate curriculum. In a study of such a case, "direct benefits in areas of communication, data collection, professional development, personal development, professional advancement, information literacy, responsibility

and knowledge" were shown (Salsman et al., 2013:202). In addition, students at a teaching-led university have shown that introducing a research project early-on increases student motivation, as they see it as real-world skills that they can add to their curricula vitarum (Lafever and Samra, 2014). They recommend that instructors need to consider:

> " ... involving students in a number of research-related activities such as class assignments, co-authorship, creation and attendance at conferences, community projects, service learning, involvement across disciplines, gaining a variety of related skills outside the class, and generally encouraging activities that can be included in a student's co-curricular record" (Lafever and Samra, 2014:48).

Mustafa (2004) emphasises that research projects allow students to explore concepts beyond textbooks and the classroom, and claim that it is a process, for which a systematic framework will allow students to produce better research reports. Salsman (2013) also report. greater student and faculty effort in all areas such as developing theories, defining samples, interpreting findings, and preparing written reports, especially if there is an intent to publish the report.

IV.3.iv Strengthening research in the undergraduate curriculum

The teaching of research is no singular concept but encapsulates a range of interventions targeted at the curriculum that allow various degrees of involvement of both the student and the lecturer, as well as varying degrees of practical research as opposed to theoretical teaching. Trowler and Wareham (2007) identify seven different ways (dimensions) in which research can be integrated in the curriculum. These can be seen as 1. learners doing research, 2. teachers doing research, 3. teachers and learners researching together, 4. research embedded in the curriculum, 5. research culture influences teaching and learning, 6. both teaching and research linked to the university and its greater environment, and 7. teaching and learning influences research. Elsen et al. (2009) isolate four kinds of research approaches in education which he refers to as the Teaching-Research Nexus (TRN), namely research-based, research-tutored, research-oriented and research-led[xv]. These can be illustrated as follows in Fig. IV.1. below.

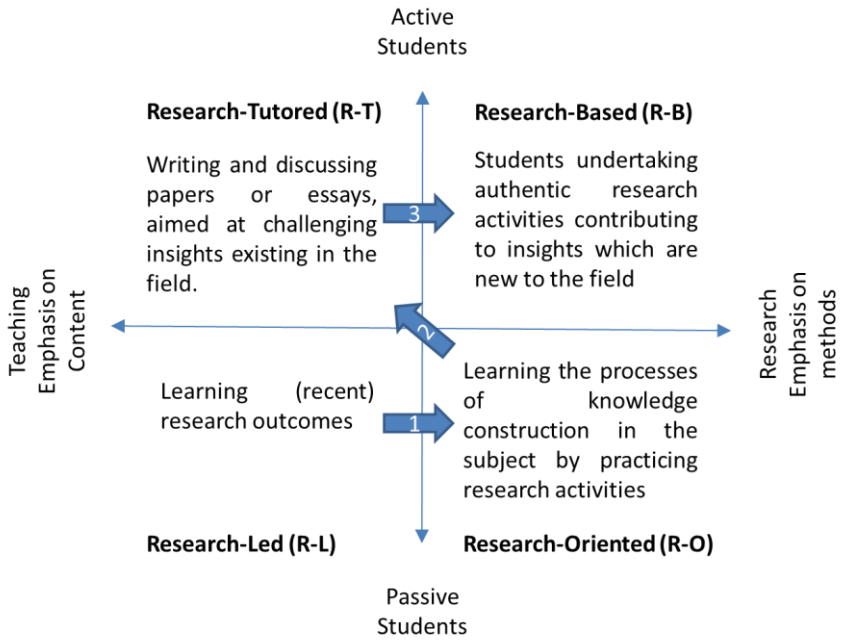

Figure IV.1 TRN Model (Adapted from Elsen et al., 2009:72)

Each dimension of research in the curriculum presents its own challenges and opportunities. See Uys and Chigona (2015) for an application of this model in introducing research in the UG curriculum in IS.

1. *Research-Led (R-L) teaching*

This aspect would present an overview of the discipline, concepts of research and theory development, the nature and philosophy of the discipline etc. The aim of this approach is to familiarise students with the content of the curriculum and the research.

2. *Research-Oriented (R-O) teaching*

This teaching approach would incorporate training on specific research and communication skills, i.e. information literacy, reading, writing, interviewing, presenting and debating. The aim of this aspect is to familiarise students with the required aspects of conducting research, by engaging them with familiar research in the discipline or institution. Elsen et al. (2009) calls this *"familiar territory"*. The results are more task-oriented research that requires greater co-operation between lecturers and students. Some challenges are that students effectively become unpaid research assistants.

3. *Research-Tutored (R-T) teaching*

This aspect would examine or critically review specific cases, articles or chapters from the discipline. The aim of this approach is the critical evaluation and discussion of

previous research findings, in greater levels of complexity and difficulty. By establishing a research culture, this approach provides for a motivational context for teaching and research. The problem is that research may become prioritized over teaching, and students may feel neglected.

4. Research-Based (R-B) teaching

The research-based approach exposes students in a research project of the discipline or institution, resulting in a presentation and/or reflection on the research process. The aim of this phase is to induct students into the "community of scholars", and to gain new insights either into the project, the methodology or themselves. With R-B teaching, students are exposed to new concepts, develop new skills and gain greater epistemological access. Limitations of this approach are that it may be too slow to fit into a typical semester, provides fragmented coverage of the curriculum, may result in poor quality research, and requires lengthy ethical clearances.

IV.3.v Teaching RUGC in IS

Most teachers in HEI are trained in research and research methods by virtue of their qualifications in the discipline through conducting an independent research study at a postgraduate level i.e. at a Master's or PhD level. This 'experience' does not however qualify them to teach research, much like having attended classes for most of one's life does not prepare one for teaching. Teaching research has most likely more synergy with research supervision than it has with having completed a research degree.

> "Research-based teaching located in students' questions is much more demanding than teaching a defined set of objectives-based instructional content which in reality is teaching a 'rhetoric of conclusions'" (Stenhouse, 1983:177 in McKernan, 2010:63)

Some suggestions are that the recommended practice for teaching RUGC is by enhancing creativity through effective mentoring (Tams, 2014). Creativity because *formal hypotheses and new ideas* are central to scientific research and effective mentoring by guiding students through the research process in an autonomous manner and helping them cope with the stressors of research and undergraduate life (Tams, 2014:174). Natsis, Papadopoulos and Obwegeser (2018:357) report that changing the role of students from consumers to producers of knowledge "promotes deeper engagement with the course material and provides valuable cognitive gains".

Integrating research in the curriculum also engenders self-regulated learninng, peer-learning and help-seeking strategies of students. This approach also developed their technical skills of "reading and analysing academic literature, writing sceintific papers, collaborating with others and comunicating effectively about their work".

> "By providing students with an active role in the learning process, the course activities offered opportunities to all students to apply and develop their skills in processing, presenting, and discussing academic work and fostered their engagement in the course, despite the different learning strategies the students may have employed" (Natsis, Papadopoulos and Obwegeser, 2018:358).

Applying the phases of mentoring as a suggested approach to developing research creativity, is outlined as a four-step process (Tams, 2014:174) namely:

Initiation→cultivation→transformation→separation

In the *initiation* phase, faculty recruit U/G researchers, provide guidance, teach the basics of research, and provides a background objective to the research. The lecturer *cultivates* the students' interests by firstly understanding these and then incorporating these in the research/academics as well as being more sensitive and interested in their life circumstances. During the *transformation phase,* students are given broader responsibilities to manage their own scope and objectives. The lecturer takes on a facilitative rather than teacher role and the students become more collaborative. In the *separation* phase, the mentor hands over responsibility for the projects and students become mentors to other students.

The mentoring approach of Tams (2014) highlighted a number of benefits, both for the educators and the IS students. Educators felt that they were more directly influencing their students' career choices as well as attracting them into more academic settings. The approach also led to a greater awareness of student interest and concerns that helped in improving classroom practices. In addition, it engendered greater working relationships with undergraduate students and outputs were presented as conference papers. Benefits expressed by the students were improved ability to put theory into practice, improved creativity and critical thinking skills as well as their problem-solving and communication skills. Although this approach reported on only two students, and not an entire class, consensus was that a semester was insufficient to develop the research capabilities in the U/G students as well as

prepare papers for conferences. Further research should follow the students in their development as researchers and evaluate their achievements in other IS courses as a result of the research intervention as well as research how such programs influence enrolment and interest in IS as a discipline.

> "Scientific undergraduate IS research benefits both students and faculty in a number of ways, promoting currency in the discipline, intellectual growth, and student/faculty relationships." (Tams, 2014:177).

Obwegeser and Papadopoulos (2016:256) suggest that the IS field will benefit from more case studies of integrating teaching and research and that "more insights" are needed into course design principles in order to provide "situation and context specific guidelines".

In a parallel study of introducing research in a large first year IS class (Uys and Chigona, 2015), we experienced a number of successes in the process, however it was not without its own challenges. In the process, we introduced basic academic and information literacy concepts to a group of 400 first year students in a practical manner. Students had to conduct a literature review on the role of mobile technology in the classroom and write a summary and synthesis on two papers, one of which was given to them. From this, they had to present to their peers as well as post on a closed Facebook page on what they found in their research. Challenges that we experienced in the context of introducing research at SAU was the difficulty in positioning such activities, as neither the directorate of teaching nor the research professor saw it as their role to fund such an activity. Also, due to the absence of a research professor, such an activity was not sustained and took time to gain ethics approval. Support from the department and the faculty was, however, enthusiastic, and this was important in order to enrol participants outside the department. Although the research highlighted how such activities can be integrated in the curriculum, it did require external support other than the lecturer in the class in order to implement it, due to lack of capacity and skills to introduce research in the UG curriculum. The project also highlighted first-years students' lack of awareness of the importance of research at HEI.

IV.3.vi The role of an IS research professor

The role of ICT research professors in HEI has been explored by Kroeze, Pretorius and Roode (Kroeze, Pretorius and Roode, 2010) as firstly to advance their own and co-authored work so as to 'practice what they preach'. Secondly, they should be actively

involved in research supervision and co-supervision of dissertation and thesis. Thirdly, they should coordinate and facilitate seminars and workshops with PhD and Master's students where their role is facilitative with an emphasis on the development of research methods and skills. Furthermore, they should facilitate the establishment of a research-friendly environment by means of research seminars, working papers, discussion of research activities and encouragement of other faculties' research activities. They may also be expected to participate in faculty or institutional ethics committees as well as be involved in capacity development and promoting professional IS bodies such as AIS, SACLA, IFIP and their related conferences. An additional role is that of networking and presenting/attending conferences in order to drive research efforts.

IV.4Teacher development in HEI

HEIs internationally have realised the importance of teaching as a profession in HEI, as well as the professional development of teachers, yet the self-development/self-study by teachers in HEI remains the preferred means of personal and professional development (Loughran, 2007). The following section explores issues of teacher development in HEI in SA.

IV.4.i Learning to teach in HEI in SA

In South Africa, increased access to higher education and the lack of trained academics has refocussed the attention on the professional development of HEI teachers.

> "the arrival of democracy and increased access to higher education shifted understandings of the role of university teachers from student development (the 'underprepared' student) to teacher development (the 'underprepared' teacher and, by implication, the 'underserved' student)" (In Leibowitz et al., 2017:27).

The main instrument that is used to remedy this deficit is staff-development and the establishment of centres of teaching and learning and academic developers that are tasked to manage such development outside of education departments and academic faculties. These efforts are met with significant challenges in a system of HEI with "increasing pressures of teaching, research, publication, institutional transformation, community engagement and systems of 'hard' management" (Leibowitz et al., 2017:27). This is evident in reflective reports that were obtained from participants in a national survey e.g.:

> "There are lecturers, particularly in the Science Faculty, who do not believe that the generic courses offered have sufficient relevance for their contexts (including the teaching of large classes)" (HAU1 in Leibowitz et al., 2017:27).

Several academics also reported on the tension between research and teaching, and how the emphasis on research motivated them to apply their efforts there, rather than to developing their teaching expertise. The continued separation of teaching and research, even at research-intensive institutions, has led to the establishment of separate structures, particularly in key positions such as Deans of Research and Deans of Teaching. In their survey, Leibowitz et al. (2017) found that some academics indicated a need for professional (educator) development; however annual participation from the respondents was low where less than 41% attended one or more professional learning opportunities in a year.

Those academics that indicated a need for professional development were motivated to improve their teaching for the sake of their students' learning, that traditional ways of teaching (read didactics) were no longer effective, to learn important new skills or 'tips and tricks' and for some to explore deeper meanings of theories, values, beliefs and ideologies in education or to promote critical reflexivity. Most of the academics in the survey recognised both formal and informal learning opportunities, and that it was their own responsibility to engage with such opportunities, although they felt there was a need for more formal structures of professional development for academics.

One of the principles that emerged from this study was the concept of "Good Teaching" and the role of reflective practice as central to developing "teaching excellence". Reflective practice is seen as central to the development of 'professional identities' as educators and has the potential for practitioners to improve their own practices (of teaching). The study also recognises the limitations of reflective practice in terms of academics exposure to the existing BOK in HE such as "the role and importance of the higher education context, learning theories (particularly social constructivism) and learning-centred pedagogies (with a growing focus on ICTs for teaching and learning), constructive alignment, 'epistemological access' to disciplinary knowledge (and what this means for challenging deficit understandings of student learning), 'threshold concepts' and graduate attributes, including 'employability'" (Leibowitz et al., 2017:31).

IV.4.ii Teaching as a profession

Education as a profession appears to be relegated to the professing of a discipline, whereas formal training in the profession of higher education is deemed less important for a professor. This does not mean that the profession of higher education is unimportant overall. On the contrary, countless institutions offer specialist degrees and qualifications in higher education, numerous books, journals and journal articles on education, many trained and practising educators, and some very notable educators.

The real question then is, "Is teaching a discipline, a qualification, a practice or a profession"? Or is it an unproblematic activity or 'hobby' that anyone that is trained in a discipline can do (Oleson and Hora, 2014; Squires, 1999). It seems as if a professional educator is required to know both his/her subject and *how* to teach it. Clearly one needs to be familiar with one's own discipline, as well as the profession in which one is practising, which in the case of academics is the profession of teaching, lecturing, supervising, researching, administering or professing.

> "As educators, all college faculty are members of two professions. They are both professional scholars and professional educators. And this dual identity has significant implications for the duties of post-secondary faculty members. These duties include (but are not limited to) the professional duty to conduct research and experimentation in pedagogy" (Pecorino and Kincaid, 2007:16).

So, what does one need to know in order to teach? And how does one acquire this knowledge? Aristotle was of the view that men of mere experience are not able teach, and that it requires of one to know *'why'* i.e. "having the theory for themselves and knowing the causes" (Aristotle, Met 981b8-10).

> "And in general it is a sign of the man who knows [why][22] and of the man who does not know, that the former can teach…for artists can teach, and men of mere experience cannot" (Aristotle, Met 981b8-10).

This view is supported by Merriam (1982:90), who asserts that "having a philosophic orientation separates the professional continuing educator from the paraprofessional in that professionals are aware of *what* they are doing and *why* they are doing it". Thus, it seems indisputable that training in education may provide the

[22] From Metaphysics, 981b6

theory of education to academics, yet these still need to be exercised in the classroom by the educator. What this requires is the development of faculties of critical inquiry (Brew, 2010:141).

> "Theory that is, knowing *why* they do things effectively in the classroom, comes from the reflected practice of staff in tertiary education, even if they are not able to articulate it clearly or reference it" (Herrick, 1997:181).

The development of critically reflective educators is widely regarded as one of the aims of professional education (Genor, 2005:45), yet where/when/how are they going to develop such practices if it is not taught in their disciplines? Kemmis (2010:20) feels that practitioners are best positioned to research their own practices. Yet how many academics or professors research outside their fields, and more specifically the field of teaching? This now demands further consideration.

IV.4.iii Pedagogical training

Despite the current practices and beliefs in HEI that "disciplinary qualifications and knowledge equipped them adequately to teach and/ or that learning to teach happened through immersion; that being thrown in at the deep end was the best way to learn" (Leibowitz et al., 2017:48), there is a growing body of knowledge that supports the positive influence that pedagogical training has on the quality of teaching at HEI's (Gibbs and Coffey, 2004; Postareff, Lindblom-Ylänne and Nevgi, 2008; Postareff, Lindblom-Ylänne and Nevgi, 2007; Weurlander and Stenfors-Hayes, 2008).

> "There is a much weaker tradition of professional training for lecturers in higher education, simply because the research function of the institutions and the profession of 'scholarship' itself have pushed the concept of professionalism here much more into the field of abstract and theoretical knowledge" (Jarvis, 2002:60).

Gibbs and Coffey (2004) found that, unlike in SA, initial training of University teachers is established at most universities in the UK, Norway and Sri-Lanka and although not compulsory, it is sometimes linked to probation or tenure. As the value of such training was questionable, they set out to survey 22 Universities in 8 Countries. They found that training increases the student-focussed approach that encourages deeper learning and better quality outcomes, as opposed to no training, which results in reduced student focus. Training can also improve a number of aspects as measured

on the "Good teaching scale". Training is also directly implicated in an improvement in students' learning. Teachers who attended training were inclined to experiment with different approaches in the classroom, whereas non-trained teachers conformed to teaching-focussed conventions (didactics) and the testing of acquisition of content. Additional support that was provided to trained educators was support forums for teacher and student feedback, seminars and conferences on teaching, mentoring and more positive attitudes towards teaching as a profession and training as a way to advance their careers.

In 2008, Postareff, Lindblom-Ylänne and Nevgi found that teachers in HEI do not need a certificate of teaching competencies, but that teaching skills and pedagogical knowledge is now being considered essential for educators in HEI in Europe. The trend, in general, is to move from teaching and teacher oriented approaches towards more student-centred or learning approaches where learning is facilitated by the teacher. In their follow-up study, they found that those who did not undergo any further training remained constant, except for self-efficacy scores that increased. The teachers who underwent further training indicated significantly higher increases in self-efficacy as well as in their student-focused approaches. The authors caution that the content and pedagogical approach of the training also has an influence on educator development. Consequently, they suggest that educators should not see training as a once-off activity but need to engage in continous improvement and further learning. From a course perspective, trainers should focus on changing educators' conceptions of teaching, rather than their teaching techniques.

> "Professional learning about teaching is not simply a matter of propositional knowledge or knowing about a range of strategies. Information about new approaches to teaching may come from reading, workshops, conferences, etc., but for information to become understanding in a conscious way needs the individual to interpret and transform that knowledge and understanding into practice" (Nicholls, 2002:139).

Whether academics are keen to admit it or not, they are primarily engaged in teaching as a discipline, and not the discipline in which they were taught. This has significant implications for those academics who believe that their disciplinary knowledge provides them with all the tools that they need to teach.

IV.4.iv How academics learn to teach

If one were not taught how to teach, how does one learn to teach in the first place? [23] The possibility exists that the educator did not learn to teach at all and is merely acting in such a role. For if it is possible to know how to do something, it is also possible not to know how to do it, as learning follows ignorance (Aristotle, Top. 117a11-15).

It is therefore possible that teaching requires no learning, and that everyone is hypothetically able to teach either through natural ability or through learning whilst being taught either at school or whilst studying towards a qualification in their discipline. It is also possible that one can learn how to teach through the inclusion of some formal aspect of teaching in the curriculum; however, in most disciplines, the practice of teaching is only included in the education curriculum.

In South Africa, educators are encouraged to enrol for courses in teaching in higher education. This course is mostly referred to as a Postgraduate Diploma (PGDip) in Higher education. The aim of the diploma is the "development of academic staff as reflective practitioners" by a) focussing on the relationship between theory and practice, b) broadening knowledge of teaching, learning and assessment in HEI, c) curriculum development and pedagogy including teaching with technology, d) developing capacities as educational researchers [24]. Such a qualification would go a long way towards developing quality educators, however not all institutions in SA offer such a course, and it is not yet a prerequisite for teaching, as was my case. Although this would be the preferred route to learning how to teach, it was not the one that most educators in South Africa follow. In some countries/institutions, a habilitation or habilitation to supervise (HDR) is required to teach/supervise independently. A habilitation is an independent research thesis (post-doctoral and unsupervised) that is defended before an academic committee; is required in order to be awarded *venia legend* (Latin: permission to read) or permission to "independently teach and examine a designated subject at HEI" or to be designated a full professor (Habilitation Wikipedia, 2017).

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[23] Like most of the prior questions, these questions will be examined hypothetically unless reference to an example from the literature is necessary to illustrate a particular point.
[24] From UJ's PGDip curriculum. Available at https://www.uj.ac.za/faculties/facultyofeducation/Documents/Postgraduate-Diploma-in-Higher-Education.pdf

Another alternative to self-study is that the educator could have gained some skills or knowledge of teaching through experience by working in a community of teachers or through being a student instructor or tutor during his/her undergraduate years. One does need to differentiate between the novice and the experienced educator. The novice educator has no experience, and thus could not have learned by experience alone. The experienced educator has some or significant experience in teaching. Yet the question remains whether experience is sufficient to be able to teach. This would negate the wealth of theory and literature on education and teaching.

Another option is that the educator has learned from his peers. This kind of learning can be conceptualised as a 'community of practice' or 'situated learning' (Lave and Wenger, 1991). The penultimate option is that the educator learned to teach through attending short courses as a form of 'Continuing professional development' or through undergoing formal training in education.

The final option is that the educator has taught himself. This places learning central to the concept of teaching i.e. one has to be a learner first e.g. learning how to teach, before one can be a teacher.

IV.4.v Teaching oneself to teach

In a survey amongst 53 STEM faculty members at three universities, Oleson and Hora (2014) examined how lecturers learned to teach. The question that they set out to answer was whether faculty are teaching by imitation or whether they have developed their own teaching abilities.

> "An oft-repeated mantra in higher education is that faculty ''teach the way they were taught,'' a statement acknowledging that few actually receive formal instruction in how to teach during their graduate training" (Oleson and Hora, 2014:30).

They also investigated "why faculty fail to use demonstrably effective teaching methods and other data-based information about teaching" (Menges in Oleson and Hora, 2014:30). What they found was that the majority (79%) of academics were self-taught, less than half (34%) had attended some form of professional development such as workshops, seminars and trainings and that none of the 53 STEM academics had any formal teaching qualifications. Their sources of teaching knowledge were student feedback (20%), fellow instructors (13%), being a student themselves (41%) as a

researcher (17%)[25] or in non-academic roles such as rock climbing (19%). Of the self-taught academics, 13% asked a colleague for advice, 20% relied on student feedback to inform their practices or 41% based their teaching on their own experiences as a student. Only 34% of the academics had attended some course or workshops in formal education and none indicated any reliance on literature for informing their practices, although this aspect might not have been included in the constructs that were surveyed.

> "Experiences from previous teaching experiences including trial-and-error in the classroom, and monitoring student outcomes/reactions to teaching" (Menges in Oleson and Hora, 2014:30).

One may question the wisdom of developing a body of professional educators at HEIs as self-taught practitioners, with due consideration that academics may be resistant to any forms of interfering in their teaching activities. If teaching is a skill, then surely it is a skill worth learning well, especially for those who are in positions that require them to teach.

IV.4.vi How Professors learn to teach

Kugel (1993) suggests a staged model (based on the frequent observations of others) that (self-taught) professors may traverse on their way to becoming a 'mature' or 'expert' professor. He illustrates the stages as follows:

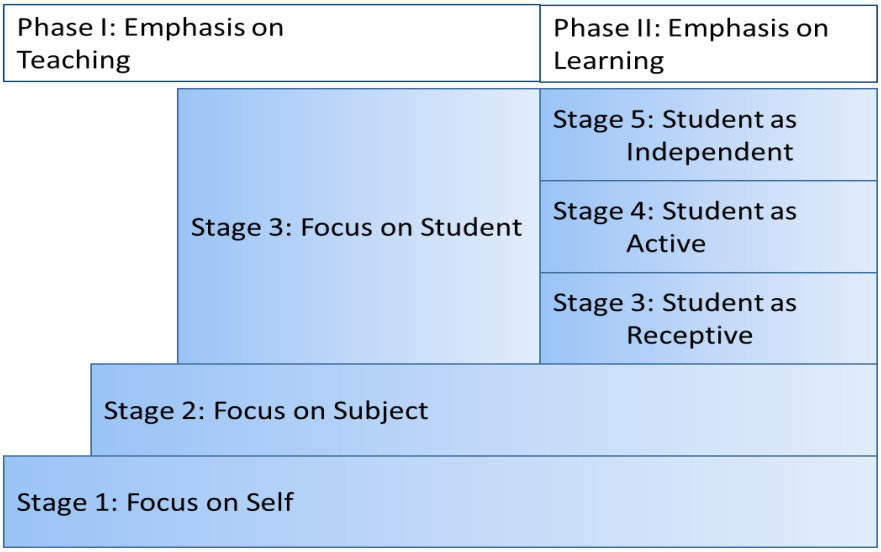

Figure IV.2 Stages of professor development (Kugel, 1993:216)

[25] Assumed that this is as a researcher in their discipline and not researching their own teaching.

Stage 1: Focus on self: Professors realise how much more it takes to teach their subjects than to learn it as a student. Hence, they focus on their own abilities and what students may think of them i.e. they become self-consciously incompetent. They learn from student reactions and gain insights from colleagues.

Stage 2: Focus on Subject: Professors develop a renewed interest in their subjects and try and make it as interesting as possible to students. *"For now, teaching is telling and learning is listening."* The professor's understanding soars and the learners' levels of understanding subside. Students are overwhelmed by the amount and complexity of work and have little time to make sense of it or to understand how the professor made sense of it as this process is not revealed to them.

Stage 3: Focus on student (as receptive): As professors' attention transitions from the subject to the students, they realise the differences in students learning and try and accommodate the differing learning styles. Classes start to become differentiated and professors discover ways to excite students' interests.

> "When professors at this stage meet at the faculty club, they still discuss student errors. But now they are more likely to talk about their causes and cures. And they are more likely to smile than to laugh" (in Kugel, 1993: 325).

Stage 4: Focus on student (as active): Professors turn more of their work over to their students. The focus changes from teaching to learning and all these approaches attempt to increase the students' learning by doing rather than listening.

> McKeachie (1986) writes: "The best answer to the question, 'What is the best method of teaching?' is that it depends on the goal, the student, the content and the teacher. But the next best answer is 'Students teaching students'" (in Kugel, 1993:325).

Stage 5: Focus on student (as independent): Having tried their entire career to 'teach' students based on their ability to prepare and present material, professors reach this stage with the realisation that now they are *"trying to help their students learn the material without their help"*.

> "The idea that students should learn how to learn solves an important problem for those college professors who worry about what they should teach …" (Kugel, 1993:325).

In many cases professors *do* develop their own teaching practices. What is not clear is how long a person may spend in each phase and how such development can be supported or accelerated.

> "As the professors' views of *how* to teach change, their views of *what* to teach may also change. They may decide that it is more important that students learn *how* to think than that they learn *what* to think. They may worry less about coverage and more about 'uncoverage'. They may respond to student questions with other questions, hoping to encourage their students to figure the answers out for themselves (Kugel, 1993:323).

This model does provide some insights on how professors can learn 'how' to teach so that they can develop students as independent learners.

IV.4.vii The discipline of teaching

Concerns of teaching as a discipline can be elevated to the level of a discipline in general i.e. of universal knowledge. Because there are different ways of 'knowing', educationists cannot aim to present one unifying form of 'knowledge depending on how 'theoretical' or how 'applied' they are (Squires, 1999:115). Teaching is essentially a 'practical' discipline i.e. it is about 'doing' and not 'knowing' (Squires, 1999:115), an approach consistent with those of other 'practical' educators (Carr, 1987; Carr, 1995; Carr, 2006b; W. Carr and Kemmis, 1986; Schwab, 1983). Some insights as to what it means for teaching to be considered as a discipline can be gleaned from Squires' (1999:28) work on the ontology of teaching. His inquiry starts with three basic questions namely (1999:31):

- '*What'* teachers do is to perform the functions of teaching,
- What affects teachers can be grouped under the context of "*why, what, who* and *where* of teaching"
- *'How'* they do it refers to the means of teaching which includes "all forms of educational hardware and software and the methods and techniques for using them".

In the teaching environment, professors have a number of practical choices that they need to make. Schubert (1986:15–17) presents these as determined by the five W's and H, namely *What* they should teach, *Why* they should teach it, *How* they should teach, to *whom* or by *who*, *where* they should teach as well as *when* or which stage of their lives or students' lives they are teaching for. These are decisions that educators have to make, both prior to teaching and in the teaching act itself. These teaching choices need to be informed both by the curriculum and the demands of the circumstances.

IV.5 Expert teaching

Expertise is a widely researched area (Ericsson, Krampe and Tesch-Römer, 1993; Ericsson, Prietula and Cokely, 2007; Jehenson, 1984; Tsui, 2003; Tynjälä et al., 1999) yet indications are that expertise is something that is developed from regular practice and not from innate natural abilities or even from theory[xvi]. Questions of 'expertise' revolve around how experts do what they do, as well as raising questions on how novices become experts. Other questions are 'how domain-specific or transferrable expertise is?' or 'how expertise can be articulated?' (Squires, 1999:121).

Two things are important in terms of expertise. Firstly, the role of deliberate practice (Ericsson, Krampe and Tesch-Römer, 1993), and secondly the function of expert decision making (Dreyfuss and Dreyfus, 1980). Achieving expertise through practice is conceptualised by the '10,000 hours' that it takes to become an expert in something (Gladwell, 2008). Expert decision making is characterised by experts' knowledge of the environment (circumstances) and the application of reasoning in a 'schema-driven' way in order to evaluate solutions in a cause-effect way (Orasanu and Connolly in Squires, 1999:122). Expert decision-making is differentiated from novice decision-making by having a larger resource of prior experience or schemas from which to draw (Squires, 1999:122). Expert decision making is therefore essentially a form of practical wisdom (phronēsis).

> "abstract, conceptual knowledge has its limits: that while one should obviously equip the professional with as powerful analytic tools as possible, there is no substitute for actually doing it. For experience. For practice" (Squires, 1999:125).

Deliberate practice indicates that it is not natural ability, but regular practice aimed at improving one's own practice that pays dividends in the end. This is not unproblematic practice but should involve acting and reflecting on one's actions

(Argyris and Schön, 1974). Repeated practice is pointless if there is no deliberation about such practice. In other words, doing the same thing over and over for 10,000 hours merely teaches one how to do the same thing over and over. Squires (1999:129–30) suggests six elements of professional expertise in teaching:

1. "Professionals need a *general framework* for thinking about what they will do". This provides them with a mental model or schemata that allow them to make meaning of their situations"
2. "It involves *specific knowledge* with regards to teaching", i.e. they would need to know specifically how to manage a classroom, plan a lesson, theories of motivation, writing of tasks, understanding individual and group processes, and the content of their field
3. "It involves *routinized skills* that have to be acquired by practice to be effortless". These allow the educator to 'teach' effectively without having to be concerned with the actual procedures of teaching
4. "Expertise involves *contingent analysis* which is implied by the relationship between the three dimensions". This means that teachers must be able to continuously assess the teaching moment and make micro or macro decisions as the situation demands
5. These elements need to be applied through *action*. The act of teaching is effected by and through these models of meaning and decision
6. Action is interpreted and modified through *reflection* on the action
7. Lastly *balance* is required amongst all these elements as well as between them i.e. "The elements set out point to the need not only to strike the right balance between frameworks, knowledge, skills and judgement, but between the general and the specific, the routine and the contingent"

On the other hand, a 45-year study of gifted children (Clynes, 2016) indicated that the best way to for them to learn is by performing the music such as an expert would do, and not merely by practising their musical scales. The ideal way to teach them is by challenging them with more difficult tasks or performances in order to allow these gifted children to stretch their abilities.

> "Such results contradict long-established ideas suggesting that expert performance is built mainly through practice" (Clynes, 2016:153).

Taken as a whole, these elements constitute certain characteristics of experts in general, but does not take us further along the path of understanding what makes for an expert teacher.

IV.5.i Novice versus expert teachers

Tsui (2003) found that there were significant differences between novice and expert teachers in all the phases of teaching, namely the 'preactive', 'interactive' and 'postactive' phases[26]. The main difference is in the way that novice teachers plan. These are stated in terms of their sequencing of activities, the processes that they follow, their use of objectives, the kinds of periods that they plan for and the efficiency of their plans. Novices and experts are both able to deal with the classroom situation in similar ways. Yet experts are better able to recognise situations that urgently need attention, use students' responses to build on the lesson without being side-lined, maintain a balance between the content and the students' needs as well as having a stock of routines to manage the learning environment. Most importantly experts have a better ability to represent the learning environment and analyse it in more detail guided by sound educational principles.

IV.5.ii Stages of expertise

Dreyfuss and Dreyfus (1980) outline five generic levels of competency that practitioners' traverse from novice to expert in a discipline together with their teaching and learning implications.

Table IV.2 Five-Stage model of skill acquisition (adapted from Dreyfuss and Dreyfus, 1980:7–14)

Stage	Teaching	Learning
Novice	Tasks are decomposed into a context-free models that the student can recognise without the benefit of experience. Beginner is provided with rules for determining an action based on these models, To improve student performance requires monitoring (either self-observation or instructional) to bring behaviour to conform to the rule.	Student learns how to recognise specific situations. Conforms to specific rules. Requires minimal discretion. E.g. Pilot learns how to manipulate the cockpit controls in response to instrument readings.
Competence	Scenarios encapsulate specific situations in terms of guidelines. Teaching is by example. Role of instruction is to make student aware of	Prerequisite is considerable experience in order to recognise the contextual nature of specific situations.

[26] The following summary presents a brief overview of these characteristics as tabulated in *Table XII*.2.

Stage	Teaching	Learning
	particular situations and their resolution.	Learns to recognise particular situations from experience in terms of mental models as compared to examples given. E.g. learns to recognise when plane is 'too high on approach', 'airplane is slipping' i.e. ball is out of the middle, 'approaching stall' and all the attendant visual audible and mental cues that require action on behalf of the student.
Proficiency	Each situation is different and learner needs to be shown how to recognise the differences in the new situation. Provided with 'maxims' or rules of thumbs from which to operate. Frequent use of mnemonics in training situations such as 'PUF', Power, undercarriage, flaps before landing.	Prerequisite is considerable practice in the target activity. Able to distinguish important and less important aspects depending on the scenario. Moves from focussing on specific scenarios to whole situations. The proficient pilot is able to focus on the landing situation whilst monitoring specific aircraft scenarios such as position on glideslope or aircraft setup.
Expertise	Dreyfuss and Dreyfus are not explicit on the teachers' role here. Form experience it would indicate that the teacher, through setting specific missions expose the student to a wider range of scenarios until these can be managed intuitively. Emergencies are also used as a teaching tool to keep the expert alert.	Student transitions to intuitive performance where experience and training is enacted in appropriate responses to the situation. E.g. the pilot finds himself flying the plane without recourse to assessing or analysing any particular situation or scenario except in an emergency, when alternative responses are called for
Mastery	Again, minimal guidance is provided by Dreyfuss and Dreyfus on this level. From experience again, the expert at the level of mastery is able to manage both self and others without effort. The role of the teacher at this point is to regularly assess that no bad habits have been adopted in practice.	Mastery is indicated when all principles and conscious attention fall away, and the student is entirely absorbed in the experience and all mental energy is directed toward the activity. The other benefit of mastery is that the student now has sufficient free mental capacity to be able to direct or teach another student whilst in action.

This model illustrates the different development stages from novice to expert, and also provides educators with a finer grained instrument with which to develop their own teaching strategies depending on the stage of development[xvii].

> "The training implications of this taxonomy are obvious. The designer of training aids and courses must at all times be aware of the developmental stage of the student, so as to facilitate the trainee's advancement to the next stage, and to avoid the temptation to introduce intricate and sophisticated aids which, although they might improve performance at a particular level, would impede advancement to a higher stage, or even encourage regression to a lower one" (Dreyfuss and Dreyfus, 1980:16).

The following section examines such development according to these phases.

IV.5.iii Development of novice educators

The primary way that novices learn are through imitation. As Aristotle indicates, imitation is the most natural way of learning (Aristotle, Poet 1448b2-3)[xviii]. The problem with imitation is that firstly one does not understand the reasoning behind certain actions and secondly one only tends to imitate those things with which one is unfamiliar, whereas people do not imitate things that are already part of their own nature (Bloom, Hood and Lightbown, 1974:394). The next level of competence is only achieved after significant experience that allows one to recognise the contextual nature of such imitations (Dreyfuss and Dreyfus, 1980).

At the *initiate* level academics may feel overwhelmed by the teaching situation and not have much to draw on in terms of experience or theory. In my case, I was invited to attend an introductory workshop on teaching and learning that was hosted by the Institutions Teaching and Learning directorate (30/11/2011). Reflecting on these workshops, I noticed the emphasis was on structured planning of lessons yet offered little in terms of dealing with the teaching situation. As an educational novice, I made elaborate plans of how the course objectives could be met.

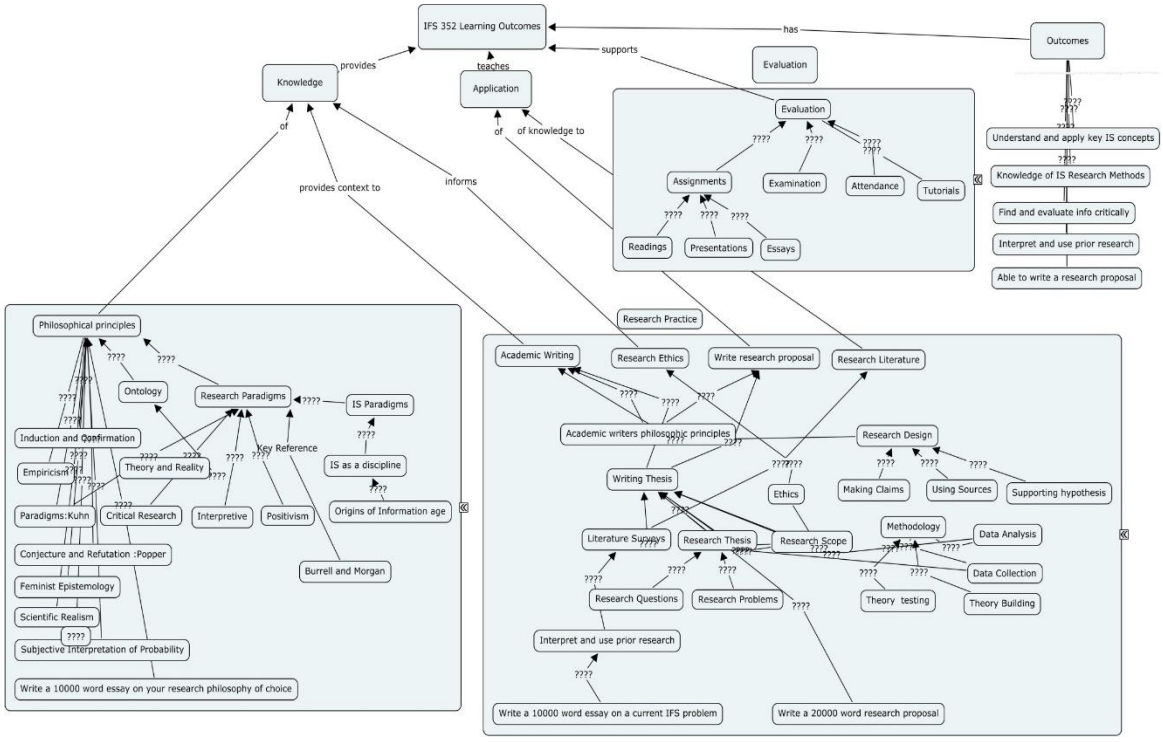

Figure IV.3 Research Methods and Philosophy Course Mind map (31/1/2011)

During the workshops, one of the tasks was to develop a concept map of our courses. The use of concept-maps for "big-picture" thinking has long been acknowledged, and

is used for curriculum planning to rethink course content, map relationships between concepts, provide an overview of the course, as well as make explicit the type of thinking required in the course (Amundsen, Weston and McAlpine, 2008). This allowed me to distinguish between the philosophical principles, research practices, types of evaluations that I could use, and the proposed outcomes of the module. Even though I did not know it at the time, this was to be of limited use in my later practices except for learning the skills of drawing a mind map and getting to grips with the course objectives.

At a formal level of learning, a *novice* lecturer may be exposed to 'traditional' educational concepts such as instructional design, course aims and objectives, instructivism and pedagogy. The most likely places for such learning will be formal education courses such as a Degree or a Diploma in Higher education, or through attending workshops and seminars. Although theoretical concepts are learned through such courses, they still need to be applied in practice and validated through some form of teaching portfolio. This kind of training is also reflected in continuous professional development (CPD) programs (Carr, 2011; Leibowitz et al., 2015). Much like professional bodies such as medicine mandate CPD programmes in order to maintain professional registration, and this could also be applied to education.

IV.5.iv Transitioning to an experienced educator

In the process of transitioning from novice to experienced educator, there is a distinct need to incorporate theory into one's practices in order to answer the question *'why'* one would do certain things in the way that one is doing it. The initial need for such theories can be met through accessing general resources such as Wikipedia or other online educational resources on the internet. By using such resources, I was quickly able to familiarise myself with these theories (Educational_sciences Wikipedia, 2017), learning theories (Learning_theory_(education) Education Theory, 2012), philosophy of education (Philosophy_of_education Wikipedia, 2017), and even specific educators such as Piaget, Vygotsky, Dewey, Bloom etc. as illustrated in *Table XII.1 Learning Theories that informed this study* in the Appendix, grouped according to Dreyfus and Dreyfuss' level of competency. Once the particular interest area is identified, the teacher can explore or access particular articles or books if properly cited in Wikipedia.

As part of the HoTEL[27] project, Millwood (Millwood, 2014) assembled a comprehensive map of key concepts in education, their learning paradigms, the learning theorists attached to these as well as the scientific disciplines to which they belong. As a novice educator, I could find a quick overview of the key learning theorists, with links to the appropriate Wikipedia page. In this way it takes me less than an hour to firstly identify a key learning concept, trace it to the learning theorist and read up more about it on Wikipedia. Depending on the level of detail required, further exploration into particular texts may be warranted. Alternatively, the new educator can explore the curriculum of his local institute (see example in Table IV.3) or even online courses in education [28] should the need arise.

If the novice educator has a need for further information on educational theory, this can more often than not be met outside of the formal educational system; in other words, "where there's a will, there's a way." The other options that I used were to speak to educators at my institute, and also to speak to the Faculty Librarian for Education.

Main Content	Child Development • Ecosystemic approach to understanding development: Bronfenbrenner • Physical development • Psycho-social development: Erikson • Cognitive development: Piaget • Implications for the teaching and learning process • Factors impacting on achievement: Family, School, Media, Society Learning theories • Cognitive development and intelligence (Gardner, Sternberg, etc) • Theories of learning: Piaget, Vygotsky, Feuerstein, Information • processing theory • Matching learning and teaching • Implications of learning theories for the teaching and learning process:

Table IV.3 Educational Psychology (EDC313) course in the Faculty of Education Calendar.

Some proponents of formal courses for education may contend that this approach to learning about education is not structured enough and that the learner educator may miss out on or omit some key theories or theorists. Yet without formal education in teaching, such as a PGDip in HEI may offer, these are the resources that a novice educator has available to him.

[27] HoTEL (Holistic approach to technology enhanced learning map)
[28] See https://www.mooc-list.com/tags/higher-education

IV.5.v Educational Influences of self-directed learning

One of the objections that novice educators may have to formal education is that it constrains their actions and they would have come to better insights through their own actions. This has much in keeping with the no-schooling or de-schooling philosophies of Rogers, Holt and Illich (Holt, 1972; Illich, 1971; Rogers, 1969).

For example, Illich (1971) sees education as an induction into a way of life that is *"consumerist, packaged, institutionalized and impoverished"*. The role of the educator is seen as "custodian, therapist and teacher". The role of the institution is also variously described as *"crèche, socialization, keeping young people out of the workforce, training in the acceptance of the values of consumerism and obedience"*. It is unlikely that a liberal society can be established through a formal educational system, as any individual freedoms are negated by virtue of the authority invested in the educator and the education system. These strong convictions have since been explored by the critical theorists such as Habermas (1972) and affected by Freire (1985)[xix].

Although the concept of de-schooling was developed with the learner in a schooling system in mind, it may equally apply to the principle of non-schooling of the educator. The premises that apply are that if learners are "provided with a rich and stimulating learning environment (they) would learn what they are ready to learn, when they are ready to learn it"[29]. One of the key principles of such an approach is that learners should be free to choose what they want to learn, when they want to as well as some other choices that they should have in life (Holt, 1972). This is also referred to as student-led learning and equally applies to adult educators wishing to take responsibility for their own practices.

IV.5.vi Scholarly teaching

Based on a critical approach, the educator himself is best positioned to research his/her own practices. Yet not everyone wants to or has a need to research their own practices. Yet educators have a moral obligation towards their students, their community of educators and themselves to research their own practices (Davidson, 2011; Gill and Bhattacherjee, 2009; Pecorino and Kincaid, 2007). This practice of researching one's practice has come to be referred to as the Scholarship of teaching

[29] http://www.essortment.com/john-caldwell-holt-author-53781.html

and learning (SoTL), regardless of whether educators are formally participating in such an initiative (Pecorino and Kincaid, 2007). SoTL can be defined as:

> "the systematic study of teaching and learning, using established or validated criteria of scholarship, to understand how teaching (beliefs, behaviours, attitudes, and values) can maximize learning, and/or develop a more accurate understanding of learning, resulting in products that are publicly shared for critique and use by an appropriate community" (Potter and Kustra, 2011:2).

SoTL is premised on the obligations that scholars need to inquire into the consequences of their work with their students (Gilpin and Liston, 2009; Pecorino and Kincaid, 2007). For example, something as simple as a change in a textbook or even a later edition, may have significant implications in terms of the affordability of the course for the students at an HDI.

Whether educators can be compelled to research their own teaching in addition to their already full workload to *"conduct scholarly research, write, publish, present, teach, grade, design courses, advise, mentor, as well as serve on committees and contribute to the community"* (Pecorino and Kincaid, 2007:4) is questionable. Would this result in a shift in emphasis from discipline based research to pedagogical research? (Gilpin and Liston, 2009).

> "The goal, many authors assume, is for scholarly teaching to lead to publications and conference presentations, and that requires the transition from scholarly teaching into SoTL…the biases of the academic community…turne(ed) SoTL into yet another form of research prioritised over teaching" (Potter and Kustra, 2011).

Moreover, is such research done merely to improve one's publication count or to gain promotion or is it intended to improve one's practices and transform education? Gilpin and Liston (2009) found that the majority of discourse on SoTL is in higher education, yet only ten per cent (10.5%) can be classified as critical and intended to transform educational practice. Although introduced as a formal concept more than 25 years ago, SoTL's initial aim was always intended to be for, about and on teaching and learning with the aim of improving both. Yet the only aspect of SoTL that benefits learning is Scholarly Teaching (ST). Potter and Kustra (2011:3–5) illustrate the differences as summarised in the following table.

Table IV.4 Differences between SoTL and ST (Potter and Kustra, 2011:3-5)

	SoTL	Scholarly Teaching
Critical Reflection	Not necessary	Essential
Systematic	Essential	Essential
Sustained	Could be short-term	Over longer periods
Publicly shared	Essential	Not necessary
Evidence based	Necessary, can also be anecdotal.	Essential
Object of study	Teaching and Learning	Research on Teaching
Goals	How a better understanding of T and L can improve learning	Maximizing learning through effective teaching
Theoretically and philosophically informed	Preferred	Essential
Maximizing learning through effective teaching	Not necessary	Essential
Student experiences	Indifferent	Should improve
Effective Teaching	Not necessary	Essential

Despite the increasing attention that SoTL has placed on teaching and learning practices, it appears to be motivated mostly by academics needs to belong to a community of practice (Beaudoin, 2012) i.e. recognition, providing academics with new outlets for publishing their research (Gilpin and Liston, 2009). It is still questionable whether SoTL improves teaching practices or even student experiences (Potter and Kustra, 2011; Prince, Felder and Brent, 2007).

> "Although both scholarly teaching and SoTL capacity can be, ought to be developed, most universities lack the resources necessary to develop both at a large scale. Thus, decisions must be made – decisions that, we hope, will be guided by clear conceptualization and a commitment to avoid perpetual devaluation of scholarly and effective teaching" (Potter and Kustra, 2011:5).

The prudent direction for educators would be scholarly teaching, which by definition is critical, transformative and aimed at improving the teaching and learning situation and not necessarily the researcher's publication count. SoTL on the other hand provides a broad vehicle in which to place any and all research that is directed at improving HEI's (Gilpin and Liston, 2009:6), and as such is worthy of adopting by a professional body of educators (Pecorino and Kincaid, 2007:3). In responding to Gilpin and Liston's (2009:6) imperative, the emphasis for scholarly teaching needs to be on transformative learning in order to "utilize the realities of the educational landscape in inquiry, facilitate the development of *conscientization*, and support *praxis* towards a more just social order".

IV.6 Reflective practice

The approach that I followed for this research is that of the reflective practitioner as outlined by (Schön, 1983; Schön, 1987)[xx]. The reflective practitioner has been proposed as a valid method for conducting educational research (Schön, 1987).

> "It is argued that professional education should be centered on enhancing the professional person's ability for 'reflection-in-action', which is learning by doing and developing the ability for continued learned throughout the professional's career" (Schön, 1987:448).

The problem is that educational research is contextual, and that the practices may not be applicable in other contexts. What may be transferrable to other contexts are the methods and theories that are used in these practices, especially if these are performed in a rigorous scientific way. According to Mezirow (1990:6), all human action is 'thoughtful action. Reflection on the other hand is 'pausing' in order to think about ones' thoughts about such action.

> "reflection is understood as an assessment of *how* or *why* we have perceived, thought, felt, or acted" in a certain way (Mezirow, 1990:6).

As Mezirow indicates, the difference between thoughtful action and reflection is that reflection questions one's actions after the act, i.e. 'what am I doing wrong' or 'what I can do better' as opposed to merely thinking about what to do in the first place, whereas thoughtful action is thinking about *what* one is doing at the time of doing it.

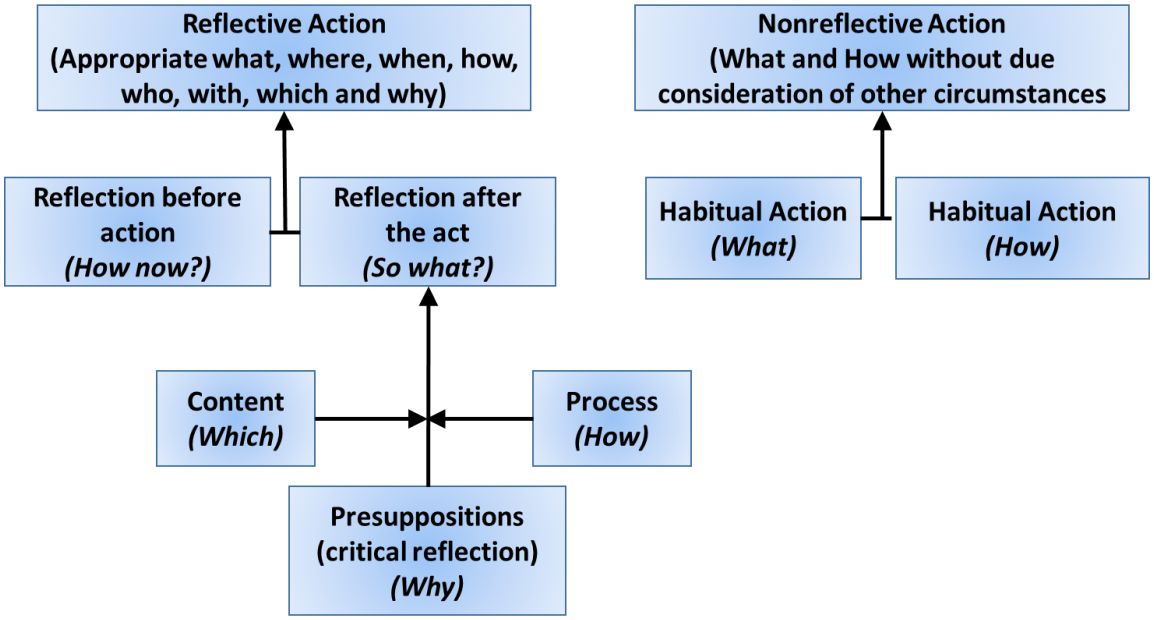

Figure IV.4 Model of reflection adapted from (Mezirow, 1990:7)

Reflection is not a clear-cut and structured process. Neither is the distinction always clear between critical reflection and reflection.

IV.6.i Learning through reflection

Reflective practices involve the practitioner in reflecting upon the contextual basis of his or her teaching practices. This does not imply merely retrospection but includes a kind of meta-retrospection where the basis for such decisions is questioned as well as introspection done to guide future actions. Even though reflection is considered to be looking back, a certain aspect of reflection relating to careful consideration can be looked at as reflection before action (Eraut, 1995).

> "The thinking on or about the experience of teaching and the thinking in the experience of teaching (contemporaneous) seem to be differently structured. Retrospective reflection on (past) experiences differs importantly from anticipatory reflection on (future) experiences" (Van Manen, 1991).

Schön (1983) distinguishes between reflecting in action and reflection on action. Reflecting in action is a kind of meta-cognition or intuition where actions are not examined retrospectively, but decisions are made on the fly. Reflecting on action is the kind of meta-retrospection as indicated previously. For Eraut (1995:16) reflection-on-action refers to the *focus* of the reflection, whereas reflection-in-action refers to the *context* of the reflection. He offers a third proposition of 'reflection-for-action' to indicate the *purpose* of reflection. This is a kind of introspection in order to learn from the past and plan for the future. This represents the temporal nature of reflection i.e. reflecting on the past, reflecting in the present, and reflecting for the future.

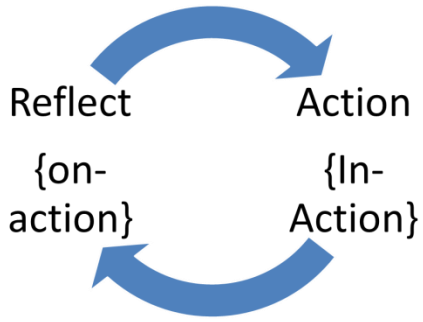

Figure IV.5 Action-Reflection Model

Schön (1987:26-29) outlines the process of reflection in action as follows:

1. Normal circumstances elicit "knowing-in-action responses that are "spontaneous" and "routinized. These responses are tacit, spontaneously delivered without conscious deliberation.
2. When routine responses produce a surprise that does not fit the "knowing-in-action" it leads to reflection "within an action-present"
3. The "reflection-in-action" leads to critical questioning of the assumptions underlying the "knowing-in-action"
4. The critical questioning leads to new action that tests prior assumptions or understandings (and develops a new understanding).

The development of learning in a specific field or discipline may not be transferable when, for example, an expert cellist player, no matter how well he is versed in responses to various sheet music, is presented with the problem of squaring up picket fences as Schön used in his example. In this case he would still have to reflect on his action and find more appropriate response to this problem or challenge. He may solve this particular problem with recourse to some kind of tool or learning that he has from his field i.e. he may fall back on the way that cellos or bows are constructed. The role of the educator can therefore be no more than introducing an unknown or unexpected circumstance to the novice, in order for the novice to develop his range of responses. The more effective the educator is in matching the types of "unknown" circumstances to that of the practice or career that the novice is to enter, or the more practice or pseudo experiences the educator can present the novice in order to develop his range of responses in a discipline, the more effective the education would be.

IV.6.ii Why a reflective practice?

When I first started teaching at SAU, the HoD realised that the lack in grounding with the Master's students started earlier in their education, and thus asked me to teach the research methods course. I started my first teaching in 2011, and I invited Prof Ngwenyama to present to my students in one of the classes. On the way to class, I expressed my concern to him about how quiet the students were[30] , and how I could get them more involved.

[30] IFS352.2011 Reflection, 1/6/2011

In class, Prof Ngwenyama pulled up a chair to the front of the class and asked the students to bring their chairs and gather around him. He asked the students that if Michael Jackson was there, what questions they would ask him. In this way he drew out some comments/questions from the students and the class became much more interactive. On the way back from class we talked about the problem of students' participation, and I realised that the students had been conditioned to a certain way of being taught, and were not used to interactive lessons and participation. Prof. Ngwenyama suggested that I teach the students to critically reflect on their own lives in the context of higher education and share these reflection sessions in class.

On the way back, my concern had changed to 'how can I teach my students to critically reflect', and this became my second research question. This led me to become conscious of my own actions (and inactions) in a political world, while reflexively attempting to teach my students how to become critically conscious of their own actions and situations in the world at the same time.

As each new opportunity opened up, I learned more about my students, my own teaching, and how to incorporate action and reflection in the curriculum. By discovering particular forms of oppression suffered by my students, being taught to follow instruction, and study the textbook, my study began to critique content-based education, and I moved more to praxis-based learning.

> "…doing research on persons involves an important educational commitment: to provide conditions under which subjects can enhance their capacity for self-determination in acquiring knowledge about the human condition" (Heron in Lather, 1986:262).

This led me to realise that, if students were to be able to confront their own realities, they would need to be able to reason effectively and to be original and innovative (see 3rd Year case study). The study became a joint inquiry into meaning and context with myself and my students (Freire, 1970a:80), which led to the rest of the research. Now, action and reflection do not make a thesis, and although I was enrolled for a PhD, I needed to overcome many challenges on my path of learning, including writing up and reasoning about the practice that I did. This in itself becomes a epistemology of Praxis (Kemmis, 2010).

IV.7 Chapter summary

Learning how to teach in Higher Education does not require merely attending a course on teaching but the development of a personal epistemology that guides one's teaching methods, styles and strategies.

The first section in this chapter provided an overview of the three primary orientations to teaching, namely a technical, practical and a critical orientation. These orientations not only influence our theories of teaching but also guide our methods, styles and strategies of teaching. The technical orientation emphasises a technical view of education where teaching is central and teaching methods are based on the transmission of information. Teaching styles are expressed in behavioural terms where learners are coaxed through the educational system and rewarded with grades and degrees. Teaching strategies favour instructional approaches and frontal teaching. The practical orientation favours constructivist theories where student-centred learning approaches dominate and facilitative methods are used in the classroom. Teaching styles favour democratic approaches where students are seen as independent self-directed learners and educators facilitate learning through questioning or problem-based strategies, demonstrations and examples. The critical orientation recognises the ethical nature of teaching and requires the educator to focus not only on the content of teaching (what is taught) and the process of teaching (how it is taught), but the context (where, when and why) as well. The critical orientation is led by a critical pedagogy and teaching styles reflect the aims of such a pedagogy to organise action in order to address constraints that the context imposes on education, educators and students. This requires educators not only to teach their subject, but also to reflect on their own practices of teaching. Teaching styles adopt a humanistic approach and considers both the teaching and learning needs of the person (who is taught and who does the teaching).

The second section of this chapter reviews the teaching of research in IS in aid of answering RQ 5 on 'How to teach students to conduct their own research'. This section highlights the need for discipline-specific pedagogy where the educators' epistemological beliefs are congruent with that of the discipline. The challenge with a discipline such as IS are the broad curriculum responses and teaching strategies that are required to cater for the pluralistic theories, methods and paradigms in the discipline as well as the multi/inter-disciplinary nature of IS. In an already full

undergraduate curriculum, the introduction of research in IS introduces early specialisation for the student yet allows them to embark on a process of lifelong self-directed learning. Research in the UG curriculum can be taught (Elsen et al., 2009) either by 1. familiarising students with the content of the curriculum and the discipline, 2. providing training on research methodologies and research skills, 3. critically examining existing research or 4. conducting practical research. Teaching research is a skill that is similar to the skills of supervision and mentoring, and teaching students to be creative through a process of mentoring seems to be indicated (Tams, 2014). Although academics have experience both in teaching and conducting research, the teaching of research requires a different role than teaching the subject alone.

The third section in this chapter reviews teacher development in HEI in SA. In South Africa, educators are appointed based on their expertise in a discipline and not on their expertise in pedagogics. Many still feel that the training in their discipline has prepared them to teach in their field of expertise. Research has shown that pedagogical training has a marked effect on the student-centeredness of the teaching; where uneducated pedagogues favour teacher-centric, didactic and memory-based approaches, trained educators encourage a higher degree of self-efficacy, greater student-centredness and receive greater support from institutions in terms of discussion forums, seminars and conferences on teaching and learning.

In SA, HEIs have recognised the importance of educator development through the establishment of teaching and learning centres and education mentors at specific HEIs, yet these strategies have not met with broad successes (Leibowitz et al., 2017). Lecturers see limited benefits to attending teacher training and are pressured to produce student throughput and research outputs that place competing demands on their time, which does not encourage alternative approaches to teaching. The status-quo thus remains, and most academics have to teach themselves to teach. In a staged model of professors' pedagogical development, (Kugel, 1993:216) suggests that self-taught adult educators will eventually attain a degree of maturity in their teaching. The question remains whether this is the most efficient or effective means of teacher development in HEI.

The fourth section of this chapter reviewed the literature on expert teaching. Tsui (2003) found that there are significant differences between novice and expert

teachers in all the phases of their teaching. Experts are better at recognising challenges, planning for teaching and directing their teaching activities according to sound educational principles. Expertise is a well-researched area. Dreyfuss and Dreyfus (1980) outline a five-staged model of skill acquisition from novice to mastery. The implications of this model for educator development is that the level of educator expertise needs to be targeted to the interventions for their development. A one-size-fits-all approach may thus not suffice for educator development in HEIs.

An example is provided, based on my own development as an educator transitioning through these levels of expertise. The section concluded with the implication that professors are ethically required to improve their own teaching practices, and scholarly teaching (ST) (Potter and Kustra, 2011:3-5) and not the Scholarship of Teaching and Learning (SoTL) provides an appropriate path to professional self-development as an educator. ST emphasises critical reflection in an educator with the aim of improving teaching and learning practices and not merely re-producing scholarly output. This process of inquiry needs to be theoretically or philosophically informed and requires a sustained inquiry to improve one's own teaching and student learning.

Central to the process of Scholarly Teaching and Professional Practice are the principles of reflective practice that is examined in the final section of this chapter. Reflective practice allows not only for reflecting on one's own practice, but also for reflecting about one's practice i.e. the context of one's practice. This requires sustained action and reflection, not only on *what* is happening in the classroom, or *how* it is happening, but more importantly *why* it is happening and *what* can be done to improve it. By personally applying the principles of a reflective practice, and of teaching my students to critically reflect, I engaged as a scholar in the process of learning how to teach and teaching students how to learn in a dialectical epistemology of praxis.

The following chapter will review the literature on how such an epistemology of praxis may be constituted. The rest of this thesis represents my own process in becoming a professional teacher through a process of critical reflection under the auspices of Scholarly Teaching.

IV.7.i Conclusion

Scholarly teaching (ST) requires the research of one's own teaching practices in order to improve one's teaching expertise as well as student learning. Experts are better at recognising challenges in the classroom and directing their teaching efforts based on sound educational principles. The only way that this expertise can be developed is through sustained critical reflection on one's own practices and by acting on the knowledge that is gained through this process. Attending courses on teaching helps to develop one's student-centeredness and participation in the scholarship of teaching and learning (SoTL). However, educator courses can only bring the proverbial horse to the water. Perceptions still abound in HEI that disciplinary training sufficiently prepares one to teach. These beliefs further strengthen the ivory towers of education into narrow and obscure disciplines.

The multi-disciplinary, multi theoretical and multi-methodological nature of Information Systems requires an interdisciplinary approach to teaching of research in IS. This can progress through levels of exposing students to research, starting by familiarising them with the literature in IS, a research methods course, engaging critically with the literature and finally participating in research themselves. Facilitating a research curriculum requires a different approach to the classical curriculum which favours teacher-centric and content-centric approaches to teaching or even a practical curriculum where students are seen as self-directing learners and where the learning process is facilitated through problem-based strategies.

A research curriculum requires the development of the critical capabilities of students, who are able to critically engage with the historical nature of the discipline in a community of practice. Such a critical orientation requires educators to continuously question the constraints of the education system and make real-time decisions in practice on *what* to teach, *how* to teach, *where* to teach, *when* to teach, *whom* to teach, *with* what resources to teach, and *which* topics to teach. Such an approach stands in stark contrast to the technical orientation to teaching, and the conceptualisation of such a curriculum will be examined in greater detail in the chapter on the theoretical perspectives that follows.

"The question we most commonly ask is the *'what'* question – what subjects shall we teach?"

"When the conversation goes a bit deeper, we ask the *'how'* question – what methods and techniques are required to teach well?"

"Occasionally, when it goes deeper still, we ask the *'why'* question – for what purpose and ends do we teach?"

"But seldom, if ever, do we ask the *'who'* question-who is the self that teaches?"

(The Courage to Teach, Palmer, 1998:4)

Chapter V Curriculum of Praxis

> "Critical pedagogy goes beyond situating the learning experience within the experience of the learner: it is a process which takes the experiences of both the learner and the teacher and, through dialogue and negotiation, recognises them both as problematic" (Grundy, 1987:103).

CRITICAL curriculum practices are not informed by statements of curriculum aims and objectives but require constant *"reflection and risk-taking action by the participants"* (Grundy, 1987:121). It also needs to continuously question *"whether or not the curriculum practices operate to emancipate the participants through the process of learning"* (Grundy, 1987:122).

V.1 Introduction

A critical curriculum requires *expert* educators to make real-time *decisions* on the challenges that are experienced in the teaching situation and direct their teaching activities according to sound educational practices as reviewed in the previous chapter. This requires a different approach to teaching than the classical planning by objectives (PBO) approach, where the curriculum aims, goals and objectives are pre-determined. Aristotle was of the view that mere experience is not sufficient to teach and that a true educator also needs to engage critically with *why* things are as they appear (Met 981b8-10). This requires an educator to critically engage with personal epistemologies and theories of action. In this chapter, I outline the basis of a curriculum of praxis that is derived from Aristotle's gnoseology of phronēsis or practical wisdom. This theoretical perspective aims to explore how such a curriculum of praxis is to be constituted and analysed. The objective is to critically review the extant literature on a suitable approach that will aid me to conceptualise a curriculum of praxis in support of my research question of learning to teach students to learn themselves. In support of this objective, I explore the origins of praxis in Aristotle's extant works, argue why phronēsis lies at the heart of a curriculum of praxis, and explore how phronēsis is operationalised in practice as essentially dialectical. This takes me to reveal the topical nature of dialectics in even further depth before concluding how this can possibly shape expert decision making in an epistemology of praxis.

V.2 Curriculum design

A curriculum is a design for action that sets out the objectives (*why*) for education and *how* they are to be met (Sockett, 1976:60). The classical approach to curriculum design is a deductive process that proceeds from the general aims to the specific objectives of a curriculum and is referred to as the Planning by Objectives (PBO) approach. Although there are numerous objections to the PBO approach (Eisner, 1967; Stenhouse, 1970; Wise, 1976), it has become the de facto standard in education mainly because it is seen as a sign of good practice (Sockett, 1976:125). There are however other approaches to implementing a curriculum, such as process-based approach (Stenhouse, 1975).

V.2.i Planning by objectives

PBO was envisaged as an approach to specifying and evaluating learning activities (Tyler, 2013). This has changed to a process of designing the Aims[xxi], Goals[xxii], and Objectives[xxiii] (AGO) of the curriculum (Wilson, 2013). Although these terms are used interchangeably, there appears to be a myriad of ways in which they are used in the curriculum (Wilson, 2013). Educational objectives *"are statements of desired changes in thoughts, actions or feelings of students that a particular course or educational programme should bring about"* (Stenhouse, 1970:73). These are often stated as behavioural objectives in terms of Bloom's (1956) taxonomy of Cognitive, Affective and Psychomotor objectives. These can also be mapped as the knowledge (Cognitive), attitudes (Affective) and skills (Psychomotor) behaviours of students (Clark, 2012).

V.2.ii Planning how to teach

An alternative approach to PBO is the procedural approach to curriculum development (Stenhouse, 1975). For Stenhouse, the procedural approach does not refer to a predefined set of steps but asks some fundamental epistemological and methodological questions about how teaching should be organised if it is not merely to remain the transmission of knowledge. These are expressed as a form of questions in the classroom (Lovat and Smith, 1991:132).

- "*How* is the classroom organized/arranged?"[xxiv]
- "*What* are the students and teachers/adults doing"?
- "*What* types of resources are used"?

To these can be added further "key questions that we are answering in any curriculum work" (Lovat and Smith, 1991:26) namely:

- "*Whose* knowledge (information, concepts, skills, activities, feelings, norms, beliefs) is of most use to this particular group of learners?"
- "What learning tasks (activity/resource/content), in this context, are most effective in assisting the learners to learn this knowledge?"
- "What is the most appropriate way to sequence these tasks?"
- "What is the most appropriate way to organize (interrelate) these tasks?"
- "What is the most appropriate way to structure (provide instructions to complete effectively) these tasks?
- "*How* will I know when the learners have learnt the knowledge?"

Lovat and Smith (1991) recognise that any further inquiries into the aims and objectives of a course sans context are meaningless as these approaches are all normative and limit the *"apparent decision-making space"* of the lecturer. Instead, they advocate a critically "self-reflective" approach. They also recognise that curriculum planning for teachers is 'idiosyncratic,' and that the mental constructions (mental plans) are the most important, whereas the written plans are often merely *"outlines of topics or a sketchy list of important points"* (Lovat and Smith, 1991:139).

V.2.iii Curriculum perspectives

Carr and Kemmis (2003) claim that many disputes about curriculum can be traced back to disagreements on the philosophical basis of it. The first philosopher to outline a comprehensive treatise on knowledge competencies was Aristotle in his Nichomachean Ethics. To date this system is often misrepresented but has not been challenged. Aristotelian Gnosis consists of a theoretical (episteme), productive (techne) or practical science (praxis) perspective[xxv]. Grundy (1987) identifies three different kinds of curriculum that match these perspectives as a curriculum of product, process and praxis[xxvi]. She aligns these curricula with the knowledge constitutive interests of the Technical, Practical and Emancipatory interests of Habermas (1972). The differences between these interests in terms of Aristotle's elements of circumstances are explained by Aber as follows:

> "If the technical interest asks *how*, and the practical interest ask *what*, the emancipatory interest asks *how* and *what and* why" (Aber, 2010:128).

A technical curriculum focuses on an idea or a *product* that exists apart from the producer and the context, and enshrines a set of rules that are designed to achieve specified objectives, much in keeping with the PBO approach (Grundy, 1987:21-39). From a narrow perspective, the curriculum becomes a set of documents or syllabus that specify a set of learning material or course content, aims and objectives as well as means for evaluation. Theory is applied to practice in a sequential manner, and the outcome is determined by the practitioner's skills in achieving an effective and efficient outcome. Concepts or ideas are owned by authority figures such as the institution or teacher and are conveyed and reproduced as discrete bodies of knowledge in different contexts. The quality or outcome of such a curriculum is measured against the fidelity of knowledge transfer that has occurred.

A practical curriculum is process-oriented curriculum and is aimed at certain ends or production outcomes (Grundy, 1987:21-39). The curriculum becomes a process that is dialectically developed between the teacher and the learner. Learning becomes central to the curriculum and the role of the teacher is to facilitate meaning-making. The outcome of such a curriculum is "good action" and not a pre–specified set of materials to be taught.

A curriculum of praxis is a way to integrate the two disparate approaches of the curriculum as product versus practice in education (Grundy, 1987:21-39).

> "A curriculum of praxis is seen as a critical philosophy of education that aims at people's actions and dialogues in a political and social context" (Gadotti, 1996:xix).

Praxis is seen as the activity of enacting or performing an action that is an end in itself.[xxvii] For example, praxis is the *activity* of sculpting that one is engrossed in whilst making a statue, and does not in itself have a productive outcome such as creating a statue from bronze (Backman, 2010:30). A curriculum of praxis is informed by an emancipatory interest. The aim of which is wisdom (Sophia) or freedom of the constraints of the Technical interest. In a curriculum of Praxis, students and teachers become "active participants in the construction of learning" and meaningfulness of the curriculum is negotiated between the teacher and learner (Grundy, 1987:103). The process is led by "problem-posing" education (Freire, 1970a) that confronts both the teacher and the learner *"with the real problems of their existence and relationships"* (Grundy, 1987:104).

V.2.iv Curriculum analysis

Analysing a curriculum is a practice that is performed routinely by curriculum evaluators (often as part of the ADDIE model of curriculum planning as outlined in Chapter IV.2.vi Instructional Design), yet is not formally taught in other disciplines. Analysis is a concept frequently used in Information Systems and is defined by Aristotle (APo n.d.:98a1-34) as the process of formulating the subject of investigation by examining the properties that adhere to a specific object and precedes the process of defining the true generic character of the subject.

> Curriculum analysis "unpacks a curriculum into its component parts e.g. learning, teaching, knowledge, society, resources; evaluates how the parts fit together, say in terms of focus and coherence; checks underlying beliefs and assumptions; and seeks justification for curriculum choices and assumptions" (Jansen and Reddy, 1994:4).

Curriculum analysis is a necessary by-product of a curriculum of praxis, as the curriculum is not pre-specified but develops reflexively between the teacher and the student. Analysing a curriculum from a praxis perspective requires an inductive analytic approach that starts with specific circumstances and induces through specific actions general premises or aims for such a curriculum. This stands in contrast to the deductive PBO approach that starts with *"general, long-term desirable consequences of schooling (goals) [and deriving] specific, short-term consequences [or objectives]"* (Wise, 1976:280). The reason why curriculum analysis is necessary in a curriculum of praxis, is twofold, namely

1. Praxis arises from the real world of action and interaction (Grundy, 1987:135), therefore curriculum statements cannot be pre-specified theoretically or in advance.
2. As the curriculum arises from specific circumstances and actions, the outcomes and consequences can only be analysed in retrospect in order to aid further curriculum development.

This approach has a lot of synergy with curriculum action research (CAR) (McKernan, 1996) and specifically critically emancipatory action research (CEAR)

approach (McKernan, 1996:27)[31]. This does not mean that the curriculum is seen as entirely from a critical emancipatory interest, as it contains elements of a curriculum of product and a curriculum of process that is *"negotiated through complex human interaction and decision-making…shared by a wide-range of participants: teachers, administrators, parents, policy makers and others"* (McKernan, 1996:27).

V.3 What is Praxis

The concept of praxis is rooted in Aristotle's Philosophy of knowledge and was part of his educational approach (Brumbaugh and Laurence, 1959; Kemmis, 2012), yet it is only in the past 30 years that praxis has emerged as a viable approach to education and pedagogy (Kristjánsson, 2005). It finds further development in the works of Dewey (1910; 1933), Habermas (1972:205), Durkheim (Asgharpour, 1961; 1956), Stenhouse (1975), Freire (1970a; Mayo, 2004), Grundy (1987), Giroux (1988) and Carr (2007; 2006). Praxis is rooted in Aristotle's concept of phronēsis, moral virtue, values and ethics, and is closely aligned to ones habits and actions (Carr, 2011).

> "Morality thus presupposes a certain capacity for behaving similarly under like *circumstances*, and consequently it implies a certain ability to develop habits, a certain need for regularity. So close is the connection between custom and moral behaviour that all social customs almost inevitably have a moral character" (Durkheim, 1961:27)

Praxis is a "broad, ethico-political concept, concerned with how we live in society, not with a particular field of activity such as a profession" (Squires, 1999:116). What we classify as a professional discipline, Aristotle would call techne or art[xxviii]. Praxis also draws on the Marxist concept of liberation politics, looking at the double purpose of education of *"living well"* and creating *"a world worth living in"* (Kemmis, 2012). This stands in contrast to vocational education of *"making a living"*.

V.3.i Knowledge perspectives

Practical Wisdom or phronēsis has its origins in virtuous human conduct, a matter that Aristotle presents in his Ethics as one of the five major intellectual virtues or Gnosis. These intellectual virtues are Philosophic Wisdom (Sophia)¸ Intuitive Reason (Nous), Practical Wisdom (Phronēsis), Scientific Knowledge (Episteme), and Art

[31] CEAR differs from CAR in that it originates from Aristotle's system of analysis and causality. In order to analyse curriculum, one needs to start with Aristotle's concept of Inductive Analysis.

(Techne) and three minor virtues of Deliberation (Prohairesis), Understanding (Synesis) and Judgement (Gnome) (EN, 1139b15-20)[xxix]. Each of these ways of knowing requires different methods to inquire into the phenomena of interest, each make different knowledge contributions and each requires a different approach to teaching.

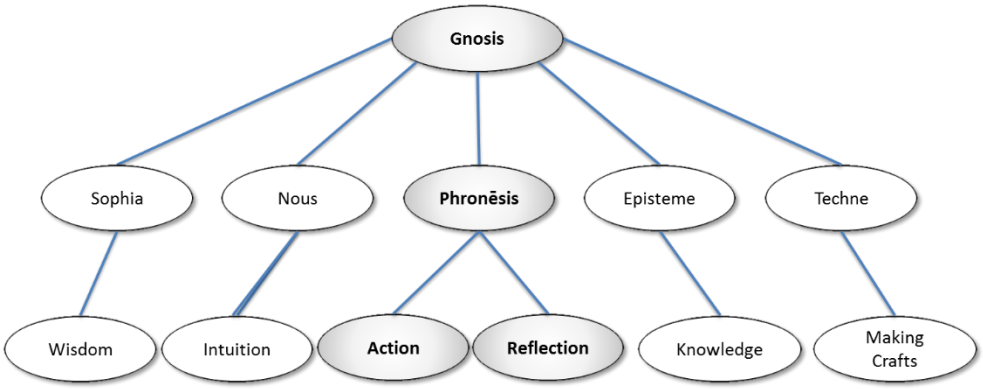

Figure V.1 Aristotle's Gnosis and the situation of action and reflection as phronēsis

Traditionally, knowledge is referred to as epistemology; however, episteme is only one kind of knowledge, whereas the collection is referred to as gnoseology or gnosis. For a further elaboration of Aristotle's five major intellectual virtues, refer to Nichomachean Ethics (EN, 1139b15-20). Following is a brief summary of how these apply to the different ways of knowing.

Table V.1 Knowledge claims of Aristotle's Gnosis (EN, 110b6)

Gnosis	Knowledge Contribution	Way of knowing
Sophia/ Wisdom	Knowledge of first principles (Met, 996b12-15)	Reasoning
Nous/ Intuition	Knowledge of self	Contemplation, reflection
Episteme (Theoretical knowledge)	Scientific knowledge	Science
Phronesis (Practical wisdom)	Knowledge of how to act in society	Human conduct
Techne (Art)	Knowledge of Ideas, Medicine, Geometry, Physics (Met, 1075a1)	Productive sciences

Fundamentally however Sophia refers to wisdom, nous to intuition, episteme to theoretical knowledge, phronēsis to practical knowledge and techne to art or productive knowledge.

V.3.ii Why an epistemology of Praxis?

Education is a practical matter, as one cannot educate students without some form of action (Boud and Walker, 1991; Carr, 1987; Roger Deacon, 2004). This would involve

practical decisions and actions on *what* to teach, *how* to teach and *when* to teach (Schubert, n.d.). In this way, education is seen as a 'moral practice' where ongoing decisions need to be made in terms of what is best for the student depending on the circumstances (Campbell, 2004; Fitzmaurice, 2008; Pring, 2001).

Carr (2006) proposes that educational action can be conceptualised as a phronēsis-praxis perspective (PPP)[xxx] and uses post-foundationalist thinkers to support his position that education is not only a-theoretical but needs to be informed by the practical and emancipatory interests that are at play as well[xxxi].

> "For praxis to be possible, not only must theory illuminate the lived experience of progressive social groups; it must also be illuminated by their struggles" (Lather, 1986:262).

The rise of neo-Aristotelianism and particularly the PPP in education over the past quarter century (Faure, 2013; Kristjánsson, 2005; Squires, 2010), is equally matched with the disillusionment with theoretically-based practices of ethics and moral reasoning (Arras, 1991; Jonsen and Toulmin, 1988) and the return to an Aristotelian basis of moral reasoning. In defence, Kristjánsson (2005) claims that no educational practice can be seen as a-theoretical, inasmuch as Aristotle's PPP claim for education itself is theoretically informed by the concept of eudemonia, or human flourishing.

Praxis is intimately involved with living well in a public sphere and integrated with ethical living and behaviour. There is a growing awareness of the 'theory' of moral agency in education as educators themselves are shifting towards more ethical and moral practices in their teaching (Fitzmaurice, 2008) against the increasing pressures to practice and perfect methods and techniques as well as throughput and output. The concept of Ethics is relevant, both to the concept of education as ethical and moral practice (Pring, 2001), the development of ethical practices in Information Systems (Mingers and Walsham, 2010), the recent call for critical research in information systems (Myers and Klein, 2011), and the ethical nature of research in Information Systems (Stahl, 2008). As such, the teaching of professional values and ethics in IS has become more critical in light of the needs of professional societies (Armstrong, Ketz and Owsen, 2003; Carr, 2011; Pring, 2001). It is often however, seen as the domain of care-based education such as medicine, nursing or ministry or even teaching (Carr, 2011) and less so in the realm of business courses such as IS.

Kristjánsson (2005) ascribes the latent rise of the PPP in education as a result of the pioneering work by Dunne (1993; 1999), Carr (2004; 1995) and Carr and Kemmis (1986). Phronēsis's roots in Aristotle (Aristotle, n.d.), and its latter development in Newman (1907), Dewey (1938) and Whitehead (1967) should also not be ignored. The contribution of other scholars such as Hermagoras of Temenos, Cicero, St Thomas Aquinas, and Father Wildes are also all invaluable to reveal the workings of phronēsis in social action as well as its latter development as stasis and casuistry (Jonsen and Toulmin, 1988; Meehan, 1940; Robertson Jr., 1946; Tallmon, 1994; Weed, 2007; Wildes, 1993). Freire himself also extended the PPP perspective as a liberating praxis (Mayo, 2004) and some progress was made to conceptualise it as a pedagogy of praxis by Gadotti (1996).

V.3.iii Returning to Aristotle's Praxis

Praxis has historically been split into two strands of philosophy, namely German ideology as espoused by Marx and Hegel and those subscribing to the spirit of Aristotle's Phronēsis (Kemmis, 2012:895)[xxxii]. The German ideology of praxis sees it as history-making action i.e. *"action with moral, social and political consequences-good or bad-for those involved in and affected by it"* (Kemmis, 2012:895). The Aristotelian view sees it as *"action that aims for the good of those involved and for the good of humankind"* (Kemmis, 2012:895).

These two perspectives both inform an epistemology of Praxis in that it can be seen as either directed at right conduct i.e. morally committed educational action, as well as history-making educational action. Praxis is as much applicable today as it was during Aristotle's times, even more so since slavery has been abolished and women are treated as equals (Guy, 1991)[xxxiii]. This is a line of thought that Carr traces back to Aristotle (Carr, 2006b; Carr, 2004; Hirst and Carr, 2005).

> "The classical theoretical vindication of practical philosophy was, of course, provided by Aristotle whose Nicomachean Ethics articulated a range of conceptual distinctions that was to provide 'practical philosophy' with its major source of theoretical intelligibility and support" (Carr, 2004:61).

For Aristotle, praxis is ethical and social action, considered together with moral reasoning or phronēsis. In Nichomachean Ethics, Aristotle explains the link between phronēsis and moral virtue:

> "Practical wisdom (phronēsis), too, is linked to virtue of character, and this to practical wisdom, since the principles of practical wisdom are in accordance with the moral virtues and rightness in morals is in accordance with practical wisdom" (EN, 1178a12-13)

Moral virtue therefore is dialectically linked to phronēsis, as it is the state of character that determines practical wisdom.

> "The interrelationship between these virtues, the intellectual and moral, is explained as being simultaneously that of unity as well as reciprocity. Their unity stems from the fact that all of Aristotle's moral virtues are specific instances of phronēsis" (Faure, 2013:52).

Despite the close links between moral virtue, phronēsis, and social and political action, they serve three different aspects of a social life. Moral virtue encompasses the habits of character that are developed through prudent action. Phronēsis is the faculty of discernment or deliberation of what is right and just in any particular situation. Praxis is the action and reflection of such action in a society by a practitioner committed to human well-being and the search for truth (Carr and Kemmis, 1986:190).

> "In Aristotle's political theory, praxis cultivates those virtues essential for good citizenship, that is, friendship, courage, temperance, justice, and wisdom. Good citizenship contributes to the good state, which in turn exists not for the sake of life only but for the sake of a good life" (Guy, 1991).

Fundamentally, according to Aristotle, moral virtue is about doing good, and the aim of doing good is 'good action' (Carr, 2006). However, in evaluating good action or theorising about action, one needs to look at theory (know-how) and practice (know-that). Hence the critique by Kristjánsson (2005) that knowledge needs to precede action.

V.4 What is phronēsis?

Phrónêsis[xxxiv] (prudence) is defined by Aristotle as *"a true and reasoned state of capacity to act with regard to the things that are good or bad for man."* (Aristotle, n.d. 1140b4-5). As Aristotle himself said, phronēsis does not aspire to be theoria, nor techne, but actions, as these are what determine man's character (EN, 1103b26-30)[xxxv].

> "Phrónêsis is not a concept primarily concerned with learning, inquiry, and research. Its primary focus is "application", performance, or enactment" (Eikeland, 2006).

With reference to the knowledge perspectives as outlined in the prior section, phronēsis is concerned with action as a result of sound reasoning and desires, and not as knowledge (episteme) or reasoning (dialektika) per-se or as communication (rhetoric) about action, nor the skilful acting (poetike) of a person or the craft of acting (techne). Being equivalent to virtuous human action, phronēsis forms the basis of all moral understanding[xxxvi]. Phronesis also guides and is superior to all the other intellectual and moral virtues, except for Sophia (philosophic wisdom) (EN, 1144b1-1145a11).

> "For with the presence of …practical wisdom, will be given all the other virtues" (EN, 1145a1-2)

Phronēsis is the mean between two vices, namely one of excess and one of deficiency and is aimed at being the congruency of desires and reasoning[xxxvii]. Aristotle cautioned that it is not easy to determine the mean in all cases, and that it takes a man of practical wisdom to determine the right actions at the right time in the right amount and for the right reasons[xxxviii]. Hence "goodness is both rare and laudable and noble" (EN, 1109a25-30).

Copying another's good action can also be seen as good action, but not practically wise action, merely imitation. Imitation is not a virtue. As such, phronēsis is concerned with action as a result of sound reasoning and not as reasoning per-se or as communication about action (EN, 1109a1-5). In practice, however, phronēsis cannot be isolated from the particular circumstances in which such action arises. Phronēsis is thus determined as the way (means or methods) that we conduct ourselves in action. As Aristotle claimed, we do not deliberate about ends, but about means (EN, 1113b, 1-5)[xxxix].

> "Recognition of the enduring significance of Aristotelian phronēsis has been helped by a revolution in twentieth century philosophy that has brought a new appreciation of engaged agency as the irreducible mode of human being in the world" (Dunne and Pendlebury, 2003:205).

This system of reasoning requires one to discern (judge) what is the better of two similar choices of what is dialectically opposite i.e. good or bad. Having the ability to distinguish 'good from evil' is considered to be the first curse/blessing that man had attracted to himself by eating of the 'forbidden fruit'.

> "Phronesis can be characterised by the relationships among phronimos, praxis and eudaimonia. The phronimos (person exercising phronesis) is concerned with virtuous praxis in particular contexts with the aim of enhancing eudaimonia, individual and social well-being" (Ngwenyama and Klein, 2018:3).

Aristotle's representation of such a system of reasoning would therefore have broad application in the sphere of human conduct and particular application in my thesis for evaluating the effects of my teaching.

V.4.i Determining the means of phronēsis

Much has been written about phronēsis in a modern context, yet Eikeland (2008) and Dunne and Pendlebury (2003) both call for a return to Aristotle's work in order to elicit the fundamentals principles of phronēsis.

> "Aristotle remains a primary source not only for those engaged in reclaiming phronēsis…but also for those mining a narrower and analytically exacting justificatory vein" (Dunne and Pendlebury, 2003:205).
> "The primary source for all attempts at rediscovering and revitalising the concept of phronēsis is, as a matter of historical fact, Aristotle (384-322 BC)" (Eikeland, 2008:6).

It is thus to Aristotle's works that we turn for an improved understanding of phronēsis. Aristotle developed his theory of phronēsis in the Nichomachean Ethics *(EN, 1106b22-28)*[xl]. For Aristotle, phronēsis is a mean-aiming between two vices, namely one of excess and one of deficiency-and is aimed at the congruency of desires and reasoning. This he explains as the selection of an equal amount between excess and defect, relative to ourselves, of anything that is continuous and divisible *(EN, 1105a25-30)*[xli].

> "Virtue, then, is a state of character concerned with choice, lying in a *mean*, i.e. the mean relative to us, this being determined by a rational principle by which the man of practical wisdom (phronēsis) would determine it" (EN, 1006b36-40).

In the context of virtue, the *mean* is considered as the best state between excess and defect (Aristotle, MM n.d.:1191b1-5)[xlii]. The synonym that Aristotle uses for the mean is the intermediate. Evaluating virtue is thus an examination of the mean, and not the mean in general, but the mean with reference to us or to the topic at hand.

> "The end, then, being what we wish for, the *means* what we deliberate about and choose, actions concerning means must be according to *choice* and *voluntary*. Now the exercise of the virtues is concerned with means. Therefore virtue also is in our own power, and so too vice" (EN, 1113b:1-5).

Aristotle does, however, caution us that it is not easy to discern what the mean is in human action. The mean depends on particular facts and the choice rests with sense-perception (EN, 1109b20-24)[xliii]. This requires a man of practical wisdom or a phronimos to determine. This is also why students of virtue needs to look towards natural science, and specifically to that of sense-perception in order to determine the goodness of one's action (NE:1147b5-8 and 1154b6-8)[xliv]. Moral virtue is expressed as a choice of the lesser of two evils, namely between excess and deficiency (EN, 1109a20-25)[xlv].

> "So much then, is plain, that the intermediate state is in all things to be praised, but that we must incline sometimes towards the excess, sometimes towards the deficiency; for so shall we most easily hit the mean and what is right" (EN, 1109b24-26).

A man should therefore not aim at *knowledge* of good action, but of *becoming good* himself and for those who are already good, practical wisdom is therefore of limited use (EN, 1143a28-30)[xlvi]. In practice, however, moral virtue cannot be isolated from the particular circumstances in which such action arises, as the mean depends on the circumstances itself.

> "A moral argument is reasonable, again, only if it addresses questions that are relevant and appropriate to its particular *circumstances* and specific issues (in Aristotle's terms, only if it is '*topical*'). So, in an innocent sense of a despised word, moral arguments are 'rhetorical'" (Jonsen and Toulmin, 1988:72).

V.4.ii Aristotle's elements of circumstances

For Aristotle, the ends desired by moral virtue are *doing the right thing,* and the right thing is not determined by a universal rule such as argued by Plato but is deemed so in accordance to the *mean* of the particular circumstance such as a man of *practical*

wisdom will determine by *means* of his sense-perception. It is thus clear that a man of practical wisdom should be able to determine the mean in particular circumstances, particularly with reference to *Why* he is or should be doing so. He illustrates this theory with reference to the human character of liberality or thriftiness.

> "Hence also it is no easy task to be good (virtuous)...for in everything it is no easy task to find the middle (mean)...e.g. to give or spend (*What*) money (*With*); but to do this to the right person (*Who*), to the right extent (*Which*), at the right time (*When*), with the right motive (*Why*), and in the right way (*How*), that is not for everyone, nor is it easy; wherefore goodness is both rare and laudable and noble" (EN, 1109a25-30).

These elements *distinguish* voluntary or involuntary action and are encapsulated in what he refers to as the '*elements of circumstances*'. These elements of circumstances are used by Aristotle to describe and evaluate moral action in terms of *What* was/should be done, *Who* did it, *How* it was done, *Where* it happened, and most importantly for what reason (*Why*?) and so on for all the other elements. The elements find their expression in Aristotle's Nichomachean Ethics as recovered by Sloan (2010:239).

> "Therefore it is not a pointless endeavor to divide these *circumstances* by kind and number; (1) the Who, (2) the What, (3) around what place (Where) or (4) in which time something happens (When), and sometimes (5) with what, such as an instrument (With), (6) for the sake of what (Why), (7) such as saving a life (Which), and (8) the (How), such as gently or violently...And it seems that the most important circumstances are those just listed, including the 'Why'" (EN, 1111a.15-20 in Sloan, 2010:240).

The significance of these elements is that they form the basis of Aristotle's concept of practical wisdom and are used in a number of different ways by latter scholars as will be outlined in the following section. It is also claimed that these elements form the basis of Aristotle's concept of the mean as recognised by Sloan (2010)[xlvii]. Aristotle indicates in the Ethics why the elements are important in terms of evaluating human (moral) action.

> "I mean, for instance (a particular circumstance or movement or action), *How* could we advise the Athenians *whether* they should go to war or not, if we did not know their strength (*How much*), whether it was naval or military or both (*What*

> *kind*), and how great it is (How many), what their revenues amount to (*With*), *Who* their friends and enemies are (*Who*), what wars, too they have waged (*What*), and with what success (*Which*); and so on" (Pol, 1396 a7-11)

Knowing what to do in particular circumstances is critical for the practically wise man, as this would determine his actions. This does not mean that the practically wise man ignores general rules or precepts, but that he is aware of these and acts accordingly.

> "Now all things which have to be done are included among particulars or (and) ultimates; for not only must the man of practical wisdom know particular facts (circumstances), but understanding and judgement are also concerned with things to be done, and these are ultimates (universal truths)" (EN, 1143a33).

For a free man is free (voluntarily) to act in a virtuous or base way, and depending on his actions, he is praised or blamed (EN, 1110b28-30). Moreover, because a man is free to act in any way that he chooses, he is also to blame if he has not considered all the circumstances of his actions.

> "Thus, with ignorance as a possibility concerning all these things, that is, *the circumstances of the act*, the one who acts in ignorance of any of them seems to act involuntarily, and especially regarding the most important ones. And it seems that the most important circumstances are those just listed, including the 'Why'" (EN, 1111a.15-20 in Sloan, 2010:m40).

Some examples can also be shown of how Aristotle uses these elements as the basis of his moral virtues and examining human character.

> *Courage*: "A brave man is one who faces and fears what he should for the right reason (*Why*), in the right manner (*How*) and at the right time (*When)*" (EN, Bk III. 9).
>
> *Generosity*: "A generous man will give to the right person (*Who*), the right amounts (*With*) and at the right times (*When*)" (EN, Bk IV. 2).

A revised reading of Aristotle in the context of the discovery by Sloan (2010), will clearly show that a person can be deemed ignorant if he does not contend with the other elements of circumstances such as what, where, when, with, who etc. depending on the circumstances or the situation at the time.

V.4.iii Elements of circumstances in practice

The most widely used application of Aristotle's *elements of circumstances*[32] appears to be in the field of journalism for episodic event-centred coverage (Jonsen and Toulmin, 1988). They commonly use the Five W's and H (Barnhurst and Mutz, 1997), defined in language as the interrogative pronouns of "*Who*, *What*, *Where*, *When*, *Why*, *How*" (Boeyink, 1992:113). These elements were also adopted by the classical Roman law and by the Catholic Church in its confessionals in an abbreviated form, both for penitence and as a set of sermons (Robertson, 1946). They have also been immortalised in Kipling's poem "The Elephant Child".

> "I keep six honest serving-men
> (They taught me all I knew);
> Their names are *What* and *Why* and *When*
> And *How* and *Where* and *Who*" (Kipling, 1902).

These elements are also incorporated in drama and the arts. The study of human sexual behaviour (Gagnon and Simon, 2005) based on the Goffman (1963) framework as well as the dramatism pentad by Burke (1945:iv) incorporate these elements. This comprises the Pentad of Act (What took place), Scene (What is the context?/Where is it happening), Agent (Who is involved or performed the act?), Agency (How was it done? By what means?) and Purpose (Why was it done? What do they want?).

> "But be that as it may, any complete statement about motives will offer some kind of answers to these five questions: *what* was done (act), *when* or *where* it was done (scene), *who* did it (agent), *how* he did it (agency), and *why* (purpose)" (Burke, 1945:xv).

Although Burke recognises the value of the pentad in determining human action, both Goffman and Burke fail to explicitly recognise and acknowledge the origin of these elements in the works of Aristotle, or situate these concepts in the sphere of moral action (Boje, 2002:1).

The elements have also been introduced to the field of *'Action Learning'* by Marsick and Maltbia (2006) and Revans (1980) as closed questions (Who? and What?), objective questions (How much or How many?), relative questions (Where and When?) and open questions (Why? and How?). Another expanding field or

[32] For a summary of these see XII.1.ix Contemporary theories using the elements of circumstances

method of education that openly uses these elements is the 4MAT Lifecycle (Harb, Durrant and Terry, 1993; McCarthy and McCarthy, 2006). Schubert (1986:15) also use these elements to ask curriculum questions such as "What should the curriculum consist of", *Why*? "To develop the mind and become acquainted with life's great ideas and questions", *How*? Great books, reading, contemplation, writing., "*Who* should have this kind of education? *Who* also refers to the teacher?", *Where* should this education be pursued (Formal/schools)" and *When*? "Throughout life, but at particular time periods". Again, quite independently of the primitive interrogatives or 5Ws and H (Five Ws, 2012).

King (1993) developed a system of Socratic-like questioning called *"guided reciprocal peer questioning"* where students in groups of three to four "are provided with a set of *generic* questions to use as a guide for generating their own *specific* questions on the lecture content" (King, 1993:32). These questions range from 'What' questions i.e. "What is the main idea of…?" or "What if…?" or What is the meaning of…?" to 'How' questions of "Explain how…?", "How are…and…similar?" or "How would I use …to…?" and 'Why' questions such as "Explain why…?", "What is the best…and why?"

> "To generate those questions, not only did the students have to identify the main ideas of the lecture, they also had to consider how those ideas relate to one another and to the students' own existing knowledge" (King, 1993:32).

These are also questions used by Toyota as a technique to establish cause and effect relationships in Business Strategy as the 5Whys (Serrat, 2009). A more recent use of these elements can be found in time management and software applications as part of the getting things done (GTD) and the secret weapon system (TSW) for recording tasks and activities in Evernote[xlviii]. TSW is illustrated in Fig 5 below.

In the critical incident technique (CIT), Flanagan, in Butterfield et al. (2004), outlines his inquiry in terms of the three critical questions namely 'The What', 'So What', and 'Now What?'. For planning SMART objectives (SMART criteria Wikipedia, 2017) they are used to inquire about '*What*' one wants to achieve, *How*, *When*, *Where* and with *Whom* as well as *Why* one wants to achieve this goal.

In Information Systems these elements have been used in Enterprise Architecture (Zachman, 1987; Zachman, 1996), Contextual Aware Information Systems (Abowd et al., 1999), Software Testing (Bertolino, 2007) (Why, How, How much, What, Where, When), and by Gregor (2006) to classify different theory types in Information Systems under "what is", "How", "Why", "When", and "Where", and "What will be". It's application was also further developed by Roode (1993) as a process-based framework for teaching of Information Systems research around four dimensions of "What is?, How does?, Why is? And How should" research, teaching or IS development be approached (Roode, 1993:7) .

Whetten (1989:492–93) uses the elements to determine "What" factors and variables constitute a theoretical contribution, "How" are these related, and "Why" the theory exists, as well as the elements of "Who, Where and When" to examine the context of the theory and its limits for generalisability.

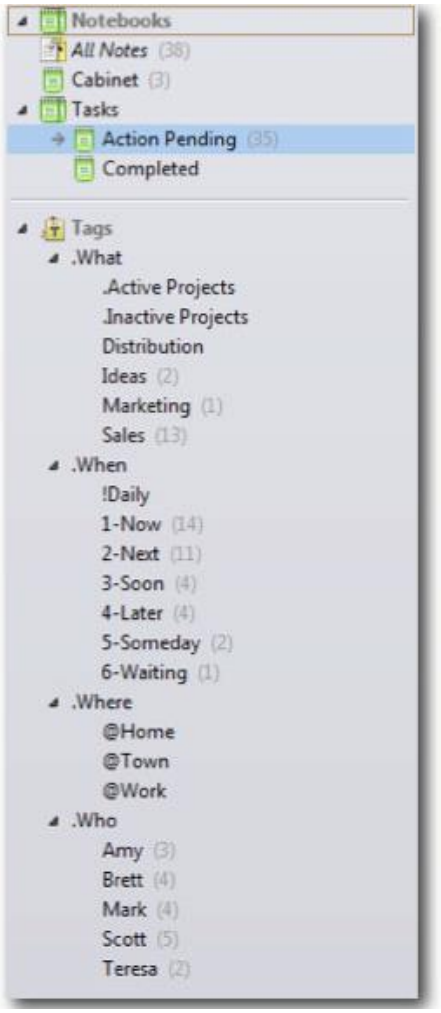

Figure V.2 TSW System

Gregor (2006:620) identifies theories used in Information Systems based on their distinguishing attributes, also liberally using the elements of circumstances. See Table XII.8 on the Taxonomy of theory types in IS in the Appendix.

Table V.2 Taxonomy of Theory Types in Information Systems (Gregor, 2006, 620)

Theory type	Distinguishing attributes
I. Analysis	Says "what is". The theory does not extend beyond analysis and description. No causal relationships among phenomena are specified and no predictions are made.
II. Explanation	Says "what is", "how", "why", "when", "where". The theory provides explanations but does not aim to predict with any precision. There are no testable propositions.
III. Prediction	Says "what is" and "what will be". The theory provides predictions and has testable propositions but does not have well-developed justificatory causal explanations.
IV. Explanation and prediction (EP)	Says "what is", "how", "why", "when", "where" and "what will be". Provides predictions and has both testable propositions and causal explanations.
V. Design and action	Says "how to do something". The theory gives explicit prescriptions (e.g., methods, techniques, principles of form and function) for constructing an artefact.

These elements also find broad application in Phronetic Social Science (Flyvberg, 2005). Even though Flyvberg was not aware of the origin of the elements of circumstances in the works of Aristotle at the time, he did use some of the elements as part of his method of Phronetic Social Science *"following Aristotle on the first, third, and fourth questions, and adding the second one in order to ensure that the study of would adequately deal with issues of power"* (Flyvberg, 2001:145).

> "Phronetic organization research focuses on the dynamic question, '*How*?' in addition to the more structural (question) '*Why*?'" (Flyvberg, 2006:379).

Flyvberg (2001) continued with the explication of four more of the eight elements of circumstances:

> "'*How?*' is thus added to '*Who?*', '*What?* And '*Where?*'" (Flyvberg, 2001)

Flyvberg also elaborated on some of the elements from Bellah et al. (2007), thereby emphasising both the teleological and casuistic aspect of a methodology for PSS[33].

> "*How* ought we to live? *How* do we think about how to live? *Who* are we, as Americans? *What* is our *character*? These are questions we have asked our fellow citizens in many parts of the country (*Where*)" (Bellah et al., 2007:vii).

Flyvberg himself used a subset of these elements in his case study in order to guide his action *"I took my point of departure in four value-rational questions which stand at the core of phronetic planning research"* (Flyvberg, 2002:6):

1. "*Where* are we going with planning and democracy in Aalborg?";
2. "*Who* gains and who loses, by which mechanisms of power?";
3. "*Is* this development desirable?";
4. "*What* should be done?" (Flyvberg, 2002:6)

Another reviving field based on these elements is that of Casuistry (Jonsen and Toulmin, 1988). Jonsen (1991), who applies *'Cicero's'* circumstances in order to elucidate a specific case, lists these as the *"who, what, when, where, why, how, and by what means"*. Essentially, these elements of circumstances provide a theoretical

[33] "Habits of the Heart has many of the characteristics that we will later identify for works of phronetic social science..." (Flyvberg, 2001).

framework that can be used to particularise, explain or predict *ANY given set of circumstances of action*[xlix].

> "Because Aristotle employs this schema as a primordial crucible for defining the difference between voluntary and involuntary agents (a topic of incalculable importance in the works of Aristotle), the benefits of locating this schema within Aristotle, and ultimately providing clarification of the passage, may prove helpful to a number of disciplines" (Sloan, 2010:236).

These elements or questions have become so embedded in our culture, that in many applications they are used as self-evident truth questions without the realisation as to their origins. Despite the broad application of these elements, none of these authors appear to have acknowledged nor traced the roots of these elements back to the works of Aristotle, and more specifically that of moral conduct. In any particular act or situation, one needs to interrogate these questions in order to determine the actual circumstances of the action.

This applies equally to education and the educator who wishes to be practically wise and not merely imitate the practices of others. A further examination therefore of how Aristotle intended these elements to be used may have a significant influence on how they have been unwittingly applied in any or all of these disciplines.

V.4.iv Theoretical Framework of Elements of Circumstance

Taken collectively, these elements of circumstances provide a conceptual or theoretical framework that enables us to analyse, explain, predict or design (Gregor, 2006:620) any theoretical or practical action or event. Resurfacing these elements in Aristotle's theory of practical wisdom (phronēsis) has broad implications for any theories of human action and reasoning. The interest in this thesis on this elaborate exegesis of the history and development of Aristotle's elements of circumstances is firstly to illustrate the persistence of these elements over time as well as the broad spheres of application where they are used. Due to the disconnect with the origin of these elements, they have over time been adapted to apply to reporting on circumstances rather than as a designing for action.

These elements have broadly been applied to education, however without this concomitant link to Aristotle's phronēsis. In order to revive this link for application in

this thesis, these diverse applications can be summarised as a theoretical framework in Table V.3 as follows.

Table V.3 Aristotle's Elements of Circumstances

#	Element	Aristotle[34]	Hermagoras[35]	Goffman[36] (1963)	Journalism[37]	Education
1	**Who**	The person	Person (quis)	Agent	Who was involved?	Administrator, Educator, Students
2	**What**	The act/action	Fact (quid)	Act	What happened?	Actions, Activities, Assignments, Tasks, Events
3	**Where**	Around what place	Location (ubi)	Scene	Where did it take place?	Place, University, School, Building, Room
4	**When**	In which time something happens	Time (quando)		When did it take place?	Times, Schedules, Calendars, Age, Stage
5	**With**	With what, such as an instrument				Resources, Tools, Technologies, Funds
6	**Why**	For the sake of what	Cause (cur)	Purpose	Why did it happen?	Reason, Purpose, Aims, Objectives
7	**Which**	Such as saving a life	Faculty (quibus adminiculus)			Course, Subject, Topic, Issue
8	**How**	Such as gently or violently	Mode (quemadmodem)	Agency	How did it happen?	Method, Process, Course

Due to the widespread application of these elements in contemporary practice and their latent application as question words (interrogatives) in the English language and their teaching to English grammar students, their application in these diverse fields are assumed. This is erroneous, because without the reference to Aristotle's theory of practical wisdom, the application of these elements may be misconstrued or some even omitted as has been the case.

[34] (Aristotle, EN, 1111a15-20).
[35] In (Robertson Jr., 1946)
[36] Gagnon and Simon (2005) based on the Goffman (1963) framework as well as the dramatism pentad by Burke (1945:iv).
[37] Episodic event coverage as outlined in Five W's (2012).

I am offering my own interpretation of these elements for the field of education based on a close reading of *'Action Learning'* (Marsick and Maltbia, 2006; Revans, 1980), 4MAT Lifecycle (Harb, Durrant and Terry, 1993; McCarthy and McCarthy, 2006), Curriculum design (Schubert, 1986:15) and for planning how to teach (Lovat and Smith, 1991:26). The implication for education is that it provides both a theory (of practical wisdom and a framework (the elements of circumstance) for analysing and implementing a curriculum of praxis. This framework allows the educator to determine his teaching actions based on *what* to teach, *how* to teach, *where* to teach, *when* to teach, *who* to teach, *with* what to teach, *which* topic to teach as well as *why* to teach.

The next section will examine how Aristotle's intended these elements to be used i.e. how do these elements relate to each other and how does one evaluate or determine practical reasoning based on these elements.

V.5 Practical reasoning

For most modern philosophers it is not clear how Aristotle devised his system of practical reasoning, or even if he used one or more systems of inquiry, and it therefore becomes extremely difficult to reconstruct such a method in the absence of clear guidance. Aristotle's lost treatise, the *Methodics,* might have had some clues as to his method of inquiry however insights need to be obtained from his other works. The problem therefore is to determine a coherent set of practices or methodology that applies the *elements of circumstances* from his extant works[38]. There are even some opinions that Aristotle could not have relied on a single method of inquiry across his extant works (Anagnostopoulos, 2009:101)[l].

> "Aristotle's thread of thought seems to have somehow escaped us so far" (Aydede, 1998:17).
>
> "By trying to conflate rhetoric, ethics, and dialectics (Jonsen and Toulmin, 72-74) into the same model of practical argumentation, the distinctions Aristotle actually worked with become all but impossible to discern through their text.

[38] This meant that I had to read most of Aristotle's treatises in order to search for the possible construction of such a method. This has been challenging in itself as firstly, I have not been trained in Philosophy nor exposed to Aristotle's works, and secondly, I did not have a specialist to guide me in this process, and thirdly I have no training in classical Greek in order to read his works in the original language.

> The most profound way, in which Aristotle was practical, even in his most theoretical endeavours, becomes totally invisible" (Eikeland, 2006).

It is my contention that Aristotle clearly distinguishes between phronēsis in his treatise on Ethics, which is about particular action, reasoning about such action as dialectics in his treatise on the Topics, representing such reasoning in the public sphere as Rhetoric, and the action of the polis as praxis in the Politics.

V.5.i Aristotle's method

Owen in Smith (1998) claims that Aristotle's method, specifically in Metaphysics, Ethics and Physics is derived more with a view to conceptual analysis or phenomena derived from prior opinions (endoxa), than by grounding them in empirical situations.

> "Aristotle's reviews of endoxa are the essential first steps in a specific philosophical method based on the assumption that the truth on a given subject is immanent in and restricted to endoxa" (Mcleod, 1995:1).

Reasoning from prior opinions and not from actions is therefore seen as a first step in Aristotle's system of practical reasoning (McLeod, 1995:1)[li]. Another perspective by Irwin (1978), is that first principles are beyond reasoning and argument, and that Aristotle dispenses with method in order to arrive at first principles by means of intuition.

> "Their accounts (Barnes, Irwin and Nussbaum) differ in detail and purpose but have several points in common. First, they agree about the method's general structure: when inquiring into X, Aristotle first garners endoxa about X; second, he examines those endoxa for difficulties; lastly, he removes those difficulties. Second, they agree that Aristotle intends the product of this final stage of the method to be a coherent subset of either the most or most important of the original endoxa, minimally revised. Finally, they agree that Aristotle believes that this subset will be the truth about X" (in Mcleod, 1995:1).

In essence Barnes proposes that Aristotle's method functions as follows:

1. Find out what other people have to say about a topic.
2. Reject what seems false and accept what seems true
3. If past opinions are all false, partially true or there are no views on the topic, then extend a new theory.

McLeod (1995) claims that Aristotle was not a radical revisionist, but neither was he a conformist (descriptivist). Aristotle did not only restrict his system of inquiry to common opinion (endoxa), but also formed the first systematic method of inductive reasoning from first principles such as confirmed by *demonstration*, and arguing from common opinion (endoxa) deductively in terms of dialectics i.e. where he agrees or disagrees with prior opinions. As Sampson and Clegg (2002) suggests, one needs to return to Aristotle's original works in order to trace his line of thought.

> "Go back to Aristotle and start over again, says Flyvberg" (Sampson and Clegg, 2002).

From my readings, Aristotle proposes to inquire into dialectical problems by evaluating what is possible or impossible, in his treatises on Topics (Top Aristotle, n.d.:1392a9-1392b14), Ethics (EN Aristotle, n.d.), Rhetoric (Rhet Aristotle, n.d.:1392a9-1392b14) and Posterior Analytics (APo Aristotle, n.d.:25b26).

V.5.ii Aristotle's dialectics

Finnigan (2006) contends that Aristotle's method of moral reasoning in the NE is dialectical in nature; a method that finds wide application in a number of Aristotle's works. Likewise, Smith (1998) supports the claim that Aristotle's method is essentially dialectic, yet struggles to show the link between ethics, moral virtue, phronēsis and action as argued in this thesis. In order to comprehend how these treatises are integrated, one first needs to examine their differences in terms of their objectives.

> *Dialectics* is the knowledge of which of two opposing choices are better i.e. the knowledge of *good* versus evil (Int, 20b20-21).
>
> *Ethics* is a system of reasoning about *good* or bad action (phronēsis) (EN 1094023-25), and politics (praxis) is reasoning about what is *good* for a community (Pol, 1252a1-5).
>
> *Rhetoric* is a complementary system to dialectics and constitutes the art of (*good*) public persuasion on which actions are based (Rhet, 1354a1-5).

All these treatises therefore aim at a different aspect of what is good for man. For Aristotle, this is the ultimate aim of all arts (techne) and inquiries (Angier, 2010:vii):

> "EVERY art (technē) and every inquiry, and similarly every action and pursuit, is thought to aim at some good; and for this reason the good has rightly been declared to be that at which all things aim" (EN, 1094a1-4).

This firmly establishes Aristotle's theory of well-being (eudaimonia) as the overall theory that informs phronesis and Aristotle's dialectics as the method of determining the means towards that end. In his theory, Aristotle outlines some of the basic needs that man has (i.e. health, friendship, money, learning etc.) in order to be happy. More important, however, is the manner in which a man fulfils those needs.

> "In eudaimonic theory, *how* we fulfil our needs is crucial. Aristotle emphasizes the necessity of acquiring the things we need at the right time (when), in the right amount (how much) and in the [right] way (how)." (Franklin, 1994:1).

Except for chance and friendship, Aristotle recognises that we can only achieve a good life through our own actions (Cooper, 2013). Not only is an adult (free man) responsible for his own action, but also for his own character (Aristotle, n.d.:1223a10-13, 19-20). For by acquiring wealth in an ill manner makes a man a thief and not a virtuous man. For it is by acting voluntarily that a man is praised or blamed, meaning with due cognisance of the best choice of actions depending on the circumstances. Cooper (2013:11) refers to this as Aristotle's theory of 'moral' responsibility i.e. "Aristotle's theory is a theory of one special sort of causal responsibility for things that happen, namely the causal responsibility of agents for some of the things that they do, that is, things that they cause in one particular way, namely by doing them".

V.5.iii Subjects of reasoning

For Aristotle, phronēsis, or the exercise of moral virtues, is concerned with the means of achieving good ends (EN, 1113b1-5). This is something which, in the end, is what we deliberate on and choose as things which are in our control. Aristotle refers to the process of deliberation as a dialectical problem. Essentially dialectics for Aristotle refers to the reasoning process that humans follow both internally (i.e. cognitively) and externally (i.e. socially) in order to determine what is best to do in a particular situation through our own actions. As Aristotle indicates in the Rhetoric:

> "Clearly counsel can only be given on matters about which people deliberate; matters, namely, that ultimately depend on ourselves, and which we have it in our power to set going. For we turn a thing over in our mind until we have reached the point of seeing whether we can do it or not" (Rhet, 1359a35-40).

Aristotle identifies four possible kinds of reasoning processes, namely 'demonstrative reasoning', 'dialectical reasoning', 'contentious reasoning', and mis-reasonings (Top, 100a25-18).

> *Demonstrative reasoning* is reasoning that asserts one half of a contradictory statement as 'true' and 'primary' and is derived from one's senses through which essential nature is exhibited (APr n.d.:24a22)(APo Aristotle, n.d.:93b15). In modern parlance, demonstrative reasoning is operationalised in terms of what we call a demonstration.
>
> *Dialectical reasoning* is based on the critical examination of pre-existent knowledge that Aristotle refers to as endoxa[lii] (Top, 100a30). Endoxa is considered to be the opinions or beliefs of others and is contemporarily referred to as dogma or dogmatic beliefs.
>
> *Contentious reasoning* is reasoning that proceeds from unqualified opinions (Top, 100b25-101a5). These are seen as the opinions of others, and particularly those who contradict established knowledge or wisdom.
>
> *Mis-reasonings* are reasonings that are formulated from false premises or through false arguments (Top, 101b5-25). Two other types of non-reasoning are for those who need punishment and are not convincing, i.e. "those who are ignorant as to whether one should honour one's parents or not", and those who need 'perception' i.e. "those who don't know that snow is white" (Top, 105a5-7)[liii].

Now the subjects of reasoning are as varied as there are things under the sun. It is this dialectical process that Aristotle examines in the Topics, and which forms the basis of the way that I analysed the corpus of reflections in this thesis.

V.5.ivWhat is dialectical reasoning

Dialectics in its simplest '*descriptive form*' is considered to be a debate or discussion between two people on matters that they either agree or disagree on, or have no opinion about (Krabbe, 2013:72). In its 'formal sense', it consists of a set of procedures or rules i.e. a method for debating the various sides of an argument, either orally or written (Krabbe, 2013:72)[liv]. For Aristotle, a dialectical problem "is a subject of inquiry that contributes either to choice and avoidance, or to truth and knowledge, and that either by itself, or as a help to the solution of some other such problems" (Top, 104b1-3).

It is well-known that the Socratic method of questioning[39] illustrates the fundamentals of a dialectical method but does not formalise it as a system of reasoning. Modern developments of this method are those of Hegel, Marx, Husserl, Heidegger and Gadamer (Dybicz and Pyles, 2011:303–5). Hegel, in drawing on its Socratic roots popularised the dialectic method of "thesis-antithesis-synthesis" operating in the world of ideas (ἰδέα) or mind[lv]. Marx took a *materialist* approach to *dialectics* and sees it as the understanding that is arrived at with our interactions with phenomena in the material world and its influence on politics and society (2011:303–5).

> "The Marxian dialectic—with its focus upon praxis and the analysis of power relations—provided the framework of inquiry from which critical theory was born" (Dybicz and Pyles, 2011:303).

Husserl in contrast focussed on the accurate perception of phenomena in the material world in relation to the essence of the phenomena in human consciousness. Heidegger extended this notion that the expression of this essence must occur within language and is thus cultural by nature (Dybicz and Pyles, 2011:303). This shifted the focus in dialectics from perception to interpretation and was labelled *hermeneutic phenomenology* (Dybicz and Pyles, 2011:303). Gadamers' development of dialectics, referred to as *philosophical hermeneutics*, returned to its Socratic roots, and broadens dialectics into a critical theory of oppression as an instrument of cultural social narratives, a field also taken up by Habermas (Dybicz and Pyles, 2011:303). The dialectical method as a procedure for inquiry has thus reached maturity in the works of Gadamer (in Dybicz and Pyles, 2011:301).

> "Its strengths (of dialectics) lie in its ability to uncover socially constructed truths, to explain human behaviour in a non-deterministic manner that emphasizes personal agency and empowerment, and to foster a consciousness-raising process that leads to praxis" (Dybicz and Pyles, 2011:301).

Dialectics' value as a method lies not so much in its ability to explain or predict naturally occurring circumstances, but in its usefulness in changing the circumstances from which it is derived (Sherman, 1976:61). *This is both the essence of a critical theory and of praxis*. Only then will it be able to transcend its current status as a rigid

[39] As encapsulated in Plato's Euthyphro dialogue with Socrates.

set of rules to be applied to one that allows us to see the world for what it really is and transform it.

V.5.v Critique of dialectics

Despite these powerful claims about the efficacy of *dialectics* as a method of inquiry into moral action, this method appears to be overshadowed by the "Scientific Method", mainly as a result of Kant's critique of reason (Kant, 1934; Smith, 1918). Most methodological textbooks advance the "Scientific method" as the de facto standard for knowledge inquiry with muted reference to alternatives such as "tradition, authority, common sense, and popular media. This is a misrepresentation of Science, which *"indicates the insurmountable challenges to establishing the legitimacy of the dialectical method in academia"* (Rubin and Babbie in Dybicz and Pyles, 2011:301).

Dialectics as a methodology has its roots in Socratic questioning, a system of reasoning that was only fully developed by Plato's student Aristotle. Yet Aristotle's Dialectics and the Topics in which they are outlined are sadly disregarded in modern systems of reasoning and analysis[lvi].

> "Thus enters the importance of 'properties such as context, judgement practice, trial and error, experience, common sense, intuition and bodily sensations' to social science, and indeed to scientific research, though this 'demands a more complex argumentation'" (Sampson and Clegg, 2002).

Even the derived works of Cicero 'De Inventione' (Mortensen, 2008; Rubinelli, 2009) would not sit well with a modern system of reasoning. Yet 'invention' lies at the heart of formulating any new knowledge and as such forms the 'art and science' of reasoning and rhetoric.

V.5.viDialectics in Plato and Aristotle

For Plato, and Aristotle after him, dialectics represented the master craft (architektonikōn) which provides us with the means to what is good in general (Angier, 2010:37). Dialectics is the only craft that can give us a clear understanding (logos) of such good (Socrates in Plato, 543b-c).

> "It is this *techne*, the highest craft of all, which purportedly 'systematically attempts to grasp with respect to each thing…what the being of it is, for all other *technai* are concerned [merely] with human opinions and desires' (533b)" (Angier, 2010:33).

It is this art that forms the basis of the philosophers' craft that allows them to look at subjects in general, both in respect of each other and with nature (Angier, 2010:33). It is this art which Newman (1852) refers to as a 'Universal education'. Yet modern dialectics appear to have been disconnected from its original roots in Aristotle as a method with which to determine prudent action (phronēsis). Because most of modern dialectics appear to be rooted in the Socratic system, it has left a void that was completed by Aristotle as the first philosopher to have developed a comprehensive system of Dialectics. It was, however, Aristotle and not Plato, who developed this method to its full potential.

> "Rules of correct reasoning were first extracted by Aristotle, yet men knew how to avoid and detect fallacies before they learned his lessons, just as men since Aristotle, and including Aristotle, ordinarily conduct their arguments without making any internal reference to his formulae. They do not plan their arguments before constructing them. Indeed if they had to plan what to think before thinking it they would never think at all; for this planning would itself be unplanned (Ryle, 1949:1:30).

Dialectics strength is as a valid method for inquiring about *contingent* matters (Soph Aristotle, n.d.). Contingent matters are matters that are determined through human reasoning and action and not based on empirical (Scientific) facts. This division between analytical sciences and dialectics is recognised by Aristotle in the Topics. This variable nature of dialectic may have resulted in the subsequent scepticism and repression of dialectics as a valid method for scientific inquiry (Mié, 2016).

V.6 Arguing dialectically

Dialectics in modern terminology refers to "the practice and theory of conversation" and not to the philosophical ideals of Hegel and Marx (Krabbe, 2013). I contend that Aristotle's dialectics is not only the theory and practice of conversation or argumentation, but it forms a system of reasoning on issues (topics) on which practical choices need to be made…hence a system of practical reasoning. In this sense I agree with Krabbe (2013) that Aristotle's dialectics, and thus the modern practice of formal dialectics, which is an implementation of Aristotle's dialectics, is essentially topical in nature.

V.6.i Argumentation in Aristotle's Topics

For Aristotle, one can argue or defend oneself from a particular perspective or what he calls Loci (τόπος or Topos). Loci[40], are referred to as the preliminary topics (τά πρό τών Τόπων) or the topics that come before the general topics (κόινοι Τόποι) (Grote, 1872:408). *Topics* are seen as common subject matter or 'places in mind' from which one can construct arguments (Tallmon, 1994). These points of view are 'common perspectives' from which philosophers can argue that allow them to have some form of agreement as to the grounds for such arguments. Arguing on specific topics depend on whether one is arguing from the position of the philosophers or from the masses. Aristotle distinguishes these arguments (especially those of the Philosophers) to come from a particular point of view or Loci.

> Now a Loci (τόπος) "is a place in which many arguments pertinent to one and the same dialectical purpose, may be *found-sedes argunumtorum*. In each *locus,* the arguments contained therein look at the *thesis* from the same point of view; and the *locus* implies nothing distinct from the arguments, except this manner of view common to them all." (Grote, 1872:409)

One of the more difficult aspects of Argumentation is exactly these grounds, Topics or Loci of arguments (Booth et al., 2008:152). Practice has resulted in a morphing of Aristotle's initial concept of Loci (Topos) as being the kinds of arguments one can make i.e. arguing from differences or similarity etc. that are applicable to all subjects, towards a form of argumentation that is discipline specific. This was not what Aristotle intended in the Topics and in Rhetoric. Aristotle recognised this at the time in Rhetoric (Rhet, 1358a20-25) that the closer to the particular Topic that one selects one's definitions, the more distinct the science in question will become.

Much debate has occurred on the subject of Aristotle's special and general Topics (Miller, 1987). According to Leff (1983:62), medieval rhetorical practices appear to have dispensed with Aristotle's concept of general and special topics in favour of a list of formulas of things to say in particular circumstances. The parts of speech with which the minor topics are concerned with, are to be able to demonstrate whether harm or good has been done, to what degree (great or small), and to determine whether justice or injustice had been done (Aristotle, Rhet).

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[40] That Aristotle is referring to in the second chapter of the Topics

V.6.ii Aristotle's system of Topical reasoning

Aristotle outlines his method of reasoning about specific topics or issues in the Topics Book I, Chapter 13. In this case, Aristotle is referring to the '*means*' of reasoning as to the 'means to an end' or the 'means of deliberating and choosing, which is an exercise in virtue. The word that is used in Greek for *means* is 'cur' meaning *'how'* or 'method' in modern parlance. The *means* thus refers to *how* we reason or argue on a particular topic. Aristotle outlines his method of reasoning as follows:

> "The *means* whereby we are to become well supplied with reasonings [καὶ τῶν ἐπαγωγῶν or kai ton epagogon] are four: (1) the securing of propositions; (2) the power to distinguish in how many senses a particular expression is used; (3) the discovery of the differences of things; (4) the investigation of likeness." (Top, 105a20-25).

Each of these '*means of reasoning'* are examined by Aristotle in chapters 14-17 in the Topics in great detail. The securing of propositions in Book I, Ch. 14 (Top, 105a33-106a1), distinguishing the number of senses in Ch. 15 (Top, 106a1-107b37), discovery of differences in Ch.16 (Top, 107b38-108a5) a subject which is either dealt with in brevity or has been excised or lost from the text, and finally the investigation of likeness, discussed in Ch. 17 (Top, 108a8-17). In Book II, Ch. 18, Aristotle brings his discussion on these four types of arguments together with a fifth kind of reasoning which results in the rendering of definitions. These five kinds of arguments (Loci) allow one to examine and defend propositions from all possible perspectives[41]. This process of practical reasoning can be illustrated using the following process diagram:

[41] The phrase that Aristotle uses for a specific perspective is to "look from the point of view of…e.g. the respective opposites" (Top, 135b7-8) He uses this term more than 18 times in the Topics with reference either to the 'opposites', 'positive and negatives', 'predicates', 'subjects', inflexions', 'greater or less' and 'attributes'. This indicates the approach of 'viewing' things from a certain perspective or of developing a view or a 'theoria' from that perspective. Each of these perspectives will be uncovered in turn as it provides further insight into the development of 'general' arguments in the topics.

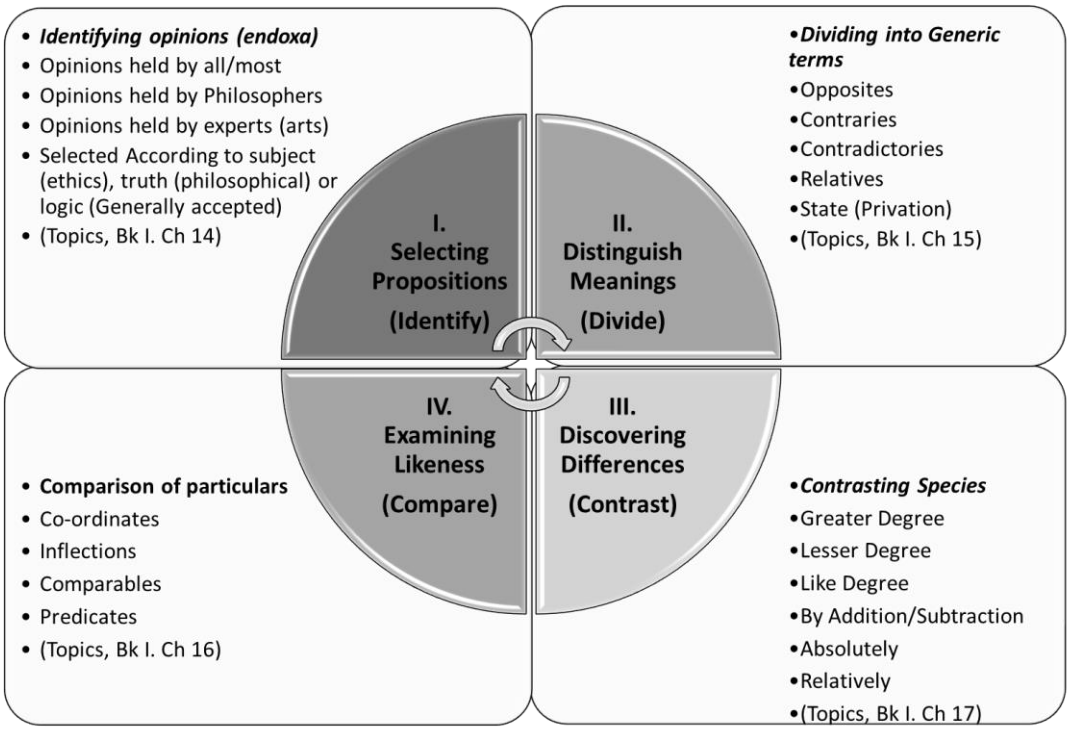

Figure V.3 Method of reasoning in the Topics (Bk I, Ch. 13-17)

These four steps of reasoning are discussed in greater detail below.

1. *Selecting Propositions*

The first step in the reasoning process is the selection of propositions, a process in which the accidental properties are ascribed to the substance hypothetically[42] by figuratively taking the proposals in hand (ἔν μέν τό προτάσεις λαβεῖν Gr.).

> "Propositions should be selected in a number of ways corresponding to the number of distinctions drawn in regard to the proposition[43]: thus one may first take in hand the opinions held by all or by most men or by the philosophers, i.e. by all, or most, or the most notable of them; or opinions contrary to those that seem to be generally held; and, again, all opinions that are in accordance with the arts." (Top, 105a32-40).

The common rule is that one should select only the propositions which are *true* or appear to be so in all or in most cases; for they may frequently be mistakenly attributed or incorrectly generalised (105b10-12)[lvii]. The propositions that are true in

[42] The term hypothesis is still used to this day in the scientific method in order to propose an untested assumption or opinion.
[43] See Chapter V.5.v Formulating compound propositions. This should include the accidental properties, the contrary, contradictory and particular properties.

most cases should be selected as representative of the case in order to compare them to those of general opinions (Top, 105b10-12)[lviii]. Aristotle refers to this concept of *'making distinctions*. Fundamental to 'making distinctions' is to identify the relevant (general) topic that these propositions refer to, subject to the knowledge[44] or opinions of others (Top, 104a35-40). These statements should also be selected and compared with statements that have been made in 'rule books'[45] outlining broad topics (Top, 105b12-15)[lix]. Also, one should look towards the opinions of other experts, as this aids in establishing a secure position on a topic (Top, 105b17-19)[lx]. Related (co-ordinate)[46] and variations or inflected forms[47] of the term should also be selected as illustrated in the Topics (114a25-35 & 105b2-10[lxi]).

2. *Distinguishing the number of meanings*

The next step in formulating arguments is in determining the different meanings that a term may have[48], a process that Aristotle refers to here as *"regards the number of senses*[49] *(that) a term bears"* (Top, 106a1-5)[lxii]. In modern terminology this refers to determining the synonyms or related terms.

For Aristotle, determining the number of meanings that a term has is useful both for clarity of expression and for accuracy of attribution *"in accordance with the actual facts and not addressed merely to the term used"* (Top, 108a18-22)[lxiii]. The purpose of establishing the number of meanings that a term may have is so that one may argue from the same place or perspective (Top, 108a22-27)[lxiv]. One therefore first needs to establish the different meanings of a term before confirming or refuting a proposition (Top, 110b8-10)[lxv]. This is important in dialectic because disagreements may exist between two parties purely because they may have different concepts in mind, and once the different meanings are established, a more fruitful discussion may ensue

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[44] Referred to as endoxa.
[45] The translated term used here is 'written handbooks of argument'.
[46] "By 'co-ordinates' are meant terms such as the following: 'Just deeds' and the 'just man' are coordinates of 'justice', and 'courageous deeds' and ' the 'courageous man' are co-ordinates of 'courage'" (Top, 114a25-30).
[47] "inflected forms are such as the following: 'justly', 'courageously', 'healthily', and such as are formed in this way." (Top, 114a32-33).
[48] A process which Aristotle examines in the ensuing chapter (Top, Bk I, Ch. 15).
[49] The reference here to 'sense' is determinant not only of the different meanings that a term has, but also from what senses (i.e. sight, sound etc) it is derived from. See Top (106a10-28), and (28-35) in terms of senses.

(Top, 108a22-25)[50]. The example that Aristotle provides is "supposing 'the right' to mean 'the expedient' or 'the honourable', you should try either to establish or to demolish both descriptions of the subject in question; e. g. by showing it is honourable and expedient, or that it is neither honourable nor expedient. Supposing, however, that it is impossible to show both, you should show the one, adding an indication that it is true in the one sense and not in the other" (Top, 110b10-15).

Aristotle outlines in the Topics (Bk I.16, 106a9-107b35) how one should go about *distinguishing* or *disputing* (διωρίσθω/διαφορων Gr. or allocating/dispute) whether a term has more than one meaning[51]. This is determined by looking[52] at the opposites of a term in terms of their contraries, contradictories, relatives and state[53]. Most importantly one should start by looking at the different kinds of species that the term may belong to, and not to the generic concept of the term itself (Top, 109b15).

3. Discovery of Differences

Differences (διαφοράν or diaphoran in Gr.) are examined in order to firstly establish how species (specialisations or variations) of terms differ from each other, but secondly also in order to establish whether they are the same or not (Top, 108b1)[lxvi]. Furthermore, it helps us to define the essence of something by determining the differences (*differentiae* Gr.) that belong to it. (Top, 108b1-6)[lxvii]. An important principle is that the differences need to be examined within the s*ame* genera, otherwise the concepts will obviously to be too far apart in reality (Top, 107b35-8a5).

> "When we have discovered a difference of any kind (differentiae) whatever between the objects before us, we shall already have shown that they are not the same: while it helps us in recognizing what a thing is, because we usually

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[50] These rules have been encapsulated by latter Rhetoricians in the 'Topics of Argumentative Invention' under 'In Re' or the present case as '1. A toto, 2. A parte, 3. A genere, 4. A specie, 5. A differentia, 6. A proprio, 7. A definition, 8. A nominee, 9. A multiplici appelatione, 10. Ab initio, 11. A progression, and 12. A perfection. See Leff, (1983:44).

[51] Aristotle annunciates this method of determining "whether a predicate has been either asserted or denied to belong universally" in the Topics (109b15-20) under Rule 2 relating to Genus the common rules for dialectical arguments.

[52] At this point Aristotle introduces the expression "*Look and see*" which he used extensively in the Topics in order to determine the different kinds of meanings that a term has. The reference to the sense of sight is significant here as the basis (sense) of experience and the pleasure that one derives from recognising things that are familiar to oneself through memories of similar experiences (Met, 980a20-25 & 980b5-8). This also has strong links with the process of induction where a number of 'individuals' take a stand in order to form a general impression or *'understanding'* (APo, 100a15-100b5)

[53] *Chapter V4.iv5 Sense: Category of State* from the Categories provides a good outline of the different senses in which something can be categorised.

> distinguish the expression that is proper to the essence of each particular thing by means of the differentiae that are proper to it" (Top, 108b1-5)

Differences are presented first by formulating a proposition i.e. 'Wherein does sensation differ from knowledge?' (Top, 107b35-8a5)[lxviii] and then attempting to answer this proposition. The example that Aristotle provides in the introduction is 'Sensation differs from knowledge in that the latter may be recovered again after it has been lost, while the former cannot' (Top, 105a28). Again, as with 'likeness', the differences between terms can be examined across the five classes of things that Aristotle outlines in the Categories, namely Accidit, Genus, Species, Property and Definition[54]. Fundamentally however, discovering the differences of things start from the same genera, then move to the species and then the properties. For example, the genus animal can be divided into the sub genera of biped or quadruped, with man belonging to biped and horse to quadruped.

In terms of establishing differences of Accidit, there are four 'commonplace rules' of 'degrees', namely (1) of greater degree, (2) lesser degree, (3) like degree and (4) by addition as tabulated in *Appendix XII.3.i* Discovery of Differences. To these are added absolute and relative differences (Topics, Book II, Ch. 2-11).

4. Investigation of Likeness

Aristotle examines likeness or what he terms 'like manner' (*ὁμοίως or omoimos Gr.*) in the Topics Bk I, Ch 17[55]. Aristotle defines likeness as follows: "One thing is like another only with reference to that in virtue of which it is such and such" (Top, 11a18-20).

[54] The Categorisation of terms will be examined in greater detail in the Research Methodology Chapter.
[55] Just as with the chapter on 'differences' in Aristotle's Topics, this chapter is much shorter than the previous chapters and covers the topic of 'likeness' in brief only. This may be as a result of lost portions of the work, either purposefully or accidentally or because Aristotle had discussed likeness in significant depth in the Categories and expects the reader to supplement the discussion from there.

Meta-cognitively, '*likeness*' refers to the representation of an object, for example a picture is a likeness of the subject it depicts and is also a likeness to the object in memory (Mem, 450b20-28). Similarly, a substance such as water from the same spring bears a certain degree of likeness to the water in the spring (Top, 103a10-15).

Characteristic of Likeness: *"Things that ought to be ranked in the same class in one way or another are called 'the same' in view of unity of species. For all such things seem to be of one family and to resemble one another" (Top, 103a15-20)* *"the fact that likeness and unlikeness can be predicated with reference to quality only, gives to that category its distinctive feature." (Cat, 11a15-18)* *One thing is like another only with reference to that in virtue of which it is such and such; thus this forms the peculiar mark of quality." (Cat, 11a18-20).*

Table V.4 Characteristics of Likeness

With regards to generic terms, *likeness* such as habits and dispositions are relative terms, as they are referred to in relation to the genus e.g. knowledge means the knowledge of something (Cat, 11a20-25)[lxix]. Likeness is therefore categorised as a *quality* with reference to a specific subject (Cat, 11a15-17)[lxx]. Likeness is also the only category that can differentiate an object in terms of variations in *quality*.

Arguments from 'likeness' are one of the most useful of the commonplace arguments (Top, 154a12-15) and Aristotle urges one to develop a number of such arguments beforehand (Top, 108b15-35)[lxxi]. Examining '*likeness*' is useful for three purposes, namely i. to formulate inductive arguments[lxxii], ii. to formulate deductive arguments (hypothetical reasoning's)[lxxiii] and iii. for rendering definitions[lxxiv] (Top, 108b5)[lxxv].

> "Moreover, try to secure admissions by means of likeness: for such admissions are plausible, and the universal involved is less patent; e.g. make the other person admit that as knowledge and ignorance of contraries is the same, so too perception of contraries is the same; or vice versa, that since the perception is the same, so is the knowledge also. This argument resembles induction but is not the same thing; for in induction it is the universal whose admission is secured from the particulars, whereas in arguments from likeness, what is

> secured is not the universal under which all the like cases fall." (Top, 156b10-20)

For Aristotle, likeness should be examined firstly by making comparisons across genera before examining them within the same genus (Top, 107b8-17)[lxxvi]. Aristotle cautions us that it becomes more difficult to examine likeness when the terms are further apart (i.e. generic terms) as it is easier to establish the similarity in terms that are closer together (Top, 10812-14)[lxxvii].

> "Moreover, look at it from the *point of view*[56] of things that stand in relations that are like each other. For if 'healthy' means 'productive of health', 'vigorous' too will mean 'productive of vigour', and 'useful' will mean 'productive of good'. For each of these things is related in like manner to its own peculiar end, so that if one of them is defined as 'productive of' that end, this will also be the definition of each of the rest as well." (Top, 153b35-40) & (Top, 136b32-40).

In conclusion, Aristotle sets out in the Topics to examine likeness in terms of the five categories in terms of likeness between things in Accidit (Bk II.10), Likeness of Genus (Bk. IV.4), likeness in Relations (BkV.7), likeness of Subjects (Bk. V.7) and likeness of Definition in (Bk VI.10).

5. *Defining terms*

The process of reasoning referred to as 'Definitory', is required in order to state whether an attribute in question belongs to a subject/object or not by way of critical examination (Top, 102b32-40). The Definitory process are therefore the arguments that we use in order to refute and defend the essence of something (Top, 102a12-15)[lxxviii]. Definitory statements are mostly concerned with questions of sameness and difference (Top, 102a8-10)[lxxix]. They are primarily directed at choice of which is more similar or different or better or worse than another e.g. "'The 'becoming' is 'beautiful', and likewise also of the question, 'Are sensation and knowledge the same or different?'" (Top, 102a9).

All definitions are formed from either "a *genus* or a *peculiarity* or an *accident*- for the *differentia* too, applying as it does to a *class*, should be ranked together with the genus." (Top, 101b17-19). Now a definition presents neither the 'Universal' nor the

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[56] Aristotle uses the term 'point of view' frequently to represent the category i.e. genus, species, relative or definition from which to view an argument. An equivalent modern term would be perspective.

'Particular' aspect of an object or subject, but is a term in the middle (mean) of these two that indicates 'why' such a relationship exists (APo, 77a1-5)[lxxx].

> "We conclude then that definition is (a) an indemonstrable statement of essential nature, or *(b)* a syllogism of essential nature differing from demonstration in grammatical form, or (c) the conclusion of a demonstration giving essential nature." (APo, Bk1, Ch.31, 94a10-15)

In formulating a definition, Aristotle cautions that it does not make sense to create a definition that is so near the *Universal* (i.e. General/generic or Genus) or so near the *Particular (i.e. Specific/species/specialisation/special)* that it adds limited value in understanding the subject at hand.

> "In general, however, it is not individuals but rather species (*eidos*: the word is one of those Plato uses for "Form") that have essences. A species is defined by giving its genus (*genos*) and its differentia (*diaphora*): the genus is the kind under which the species falls, and the differentia tells what characterizes the species within that genus. As an example, *human* might be defined as *animal* (the genus) having the *capacity to reason* (the differentia)" (Smith, 2016:19) [57].

Therefore, the best definition will consist of a sensible division of each of the species (and sub-species) into a middle term that incorporate both the genus, the species and the differentia (DA, 415a12-13)[lxxxi]: In essence the definition answers the question '*why'* certain *general* attributes belong to a *specific* subject or object.

V.6.iii Reasons and choices

The outcome of a process of reasoning is ultimately the reason 'why' a particular course of action was followed, or why a particular choice should be made. For Aristotle, the end is analogous to the aim. In order to determine the 'Why', or the outcome of the actions that occurred, one needs to look at the specific points of stasis, conflict, or success, in order to apportion praise or blame.

> "Knowledge is the object of our inquiry, and men do not think they know a thing till they have grasped the 'Why' of it (which is to grasp the primary cause)" (Phy II.3, 194b17).

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[57] a system that is still in use today that defines a subject in terms of its Genus and Differentiae (Genus–differentia Definition, 2014)

For Aristotle, the most important question one can ask about a particular case, is the reason for something to have occurred, or in terms of his elements, the 'Why' (EN, 1111a5). This is an inquiry as to "Why" something happened i.e. its cause and effect. The purpose of such deliberation is to propose or discourage a particular course of action (Rhet, 1358b1-35). The purpose is to understand the case both from within and without, and focusses both on the structural question of "Why?" things are as they are, and the dynamic question of "How?" it works (Flyvberg, 2001).

> "Again 'that for the sake of which', or the end, belongs to the same department of knowledge as the means. But the nature is the end or 'that for the sake of which'" (Phy II.2, 194a26). This art is distinguished between that which uses the product, and that which directs the production of it" (Phy II.1, 192b14)

One should also consider what Aristotle means by a judgement of practical matters and of a good judge. Judgement refers to *"the right discrimination of the equitable"* (EN, 1143a20-22). A 'judgement' occurs when the mental representation (mind) corresponds with the spoken word (Int, 23a32-35)[lxxxii]. A 'judgement' is also the final confirmation of a fact, i.e. a 'true' judgement is representative of a 'true' fact, and its contradiction is a denial or a 'false' fact (Int, 23a35-40)[lxxxiii]. A 'false' judgement on the other hand is not a contradiction of a 'true' judgement, but the contrary of it. Both 'true' and 'false' judgements are made with reference to the 'matter' or (I1 quadrant) 'it may be' (Int, 23b15-20)[lxxxiv]. The 'true' judgement is made with reference to its 'intrinsic nature', and the false judgement is made with reference to its 'accidental' nature (Int, 23b17-20)[lxxxv].

For Aristotle, a good judgement is not reached by studying books but through experience (EN, 1181b1-12). A good judge is therefore someone who is experienced in judging such matters and it therefore takes time to become a good judge (EN, 1181a35-40). Therefore, it is not surprising that Aristotle presents as his first rule of judging what is desirable, to refer to what men of experience would choose. The principle or judgement that is in operation, is the sense of quality and quantity that is inherent (by nature) in all man (Aristotle, DA Aristotle, n.d.).

V.6.iv Desirable actions

'Desire' is one of the fundamental aspects of Aristotle psychology as part of the process of reasoning and the desire to understand (Lear, 1988). The desirable appears to belong to the faculty of 'judging' and is part of Aristotle's larger concept of 'Desire' and

'Aversion'. The way for Aristotle to determine (judge) which of two or more possible choices is better, is left for what he refers to as the 'desirable'. Aristotle outlines more than 56 different rules and their variations to apply to *'things'* when determining *'that which is'* more desirable than another[58].

> "The desirable may mean either the honourable or the pleasant or the expedient" (Top, 105a27-28).
> "Moreover, you should distinguish in how many senses 'desirable' is used, and with a view to what ends, e. g. expediency or honour or pleasure. For what is useful for all or most of them may be taken to be more desirable than what is not useful in like manner." (Top, 118b27-30)

Now the desirable is useful in determining which of a number of possible options that are similar to each other are the most suitable or appropriate. For example, the two contrary propositions, 'doing good to one's friends and evil to one's enemies' AND 'doing good to one's enemies and evil to one's friends' are logically equivalent. Yet it is necessary to be able to identify which of these two are the better option, a matter which lies outside the logic of the propositions themselves. Determining that which is more desirable than another is arrived at when one gets to evaluate a number of possible similar or related options (Top, 116a5-10). Care should be taken that these things are not widely divergent, but that are similar in certain respects (Top, 105a25-28)[lxxxvi]. For Aristotle, if one can show some advantage of the one over the other, then one has a valid reason 'why' the one should be preferred over the other (Top, 116a7-10).

Once such choice is made, one can thus argue for the most desirable means to an end. This is what Aristotle had in mind with practical reasoning and determining the means to an end. For it is not the end on which we deliberate, but the means by which to achieve this end (Aristotle, NE).

V.6.v The Art and Science of Dialectics

Dialectics has as its aim *'social and individual harmony and order'* (Burnyeat in Angier, 2010:33) which is of unqualified value in a civil society. This is achieved through 'limiting' conflicts and opposing choices by imposing a definite number (selection) on them in order to form a commensurate and harmonious 'whole' (Angier,

[58] See *Appendix XII.3.ii* Judging Desirability

2010:34). This can be expressed both as an art and a science – *the science of dialectic* – a science which can be certified and taught. The remnants of this art have survived as what is deemed to be the Socratic Dialogue…sans the formal scientific process. Socrates (in the Republic, 514-521) does however, caution that such an art requires many years of experience and wisdom and that the ability to discern or judge truly i.e. to be wise, will be attained by few.

When looking for a modern implementation of Aristotle's dialectics, one should therefore not only look at formal dialectics as a system of implementation (Krabbe, 2013) but elsewhere to any or all of the modern practices that have a question-based system of reasoning attached to it. These includes any or all of the examples referred to in Section V.4.iii Elements of circumstances in practice. These systems of reasoning however lack the rigour of a formal system of reasoning that Aristotle's outlines in the Topics. Any reasonable person will recognise that any practical choice brings with it a selection of alternatives.

> "Lave (1988:2:164) explains that the aspects of problem-solving activity, such as calculating which item in a store is a better buy, are often assigned in our analysis to different times (*when*) and locations (*where*). But the process of knowing similarities and differences and articulating them is not easily located within the activity" (Clancey, 1995)

In the social sphere these alternatives need to be evaluated in terms of which choice would be the most suitable for the particular circumstances. These choices are expressed in terms of the questions of action learning (Revans, 1982a) or the value-rational questions of phronetic social science (Flyvberg, 2002). These questions focus our inquiries on *where* we are going, *how* we are going to get there, *who* is involved, *what* means or tools do we require and *why* it is important. Each of these interrogatives can generate a list of possible options or propositions when taken in terms of planning. They are also able to generate a list of possible options in terms of evaluation of actions that have occurred. Aristotle's system of topical reasoning provides the basis for such a phronetic social science. This provides a formal system of determining options (selecting propositions), sorting and eliminating duplicates, determining differences and similarities and identifying choices. This can either be applied loosely as a system of practical reasoning or developed into a formal system of scientific reasoning on social matters. My preference lies with the former, and I will

examine in the following chapter how this can be operationalised in a system of practical argumentation. In this way, Aristotle's Dialectics and Topics, as a system of practical reasoning, comes down to everyday activities of making choices and agreeing (or disagreeing) with others on these choices. Aristotle's concern in the Topics was to provide a formal system of argumentation to provide a common basis (or topic) from which to argue from. Essentially dialectics is a process of sorting of a fruit basket according to similar/different fruit and then comparing apples with apples. Aristotle's wish for us in the Ethics is that we make better choices in life in order to be better humans and to live in harmony (agreement) with others.

V.7 Chapter summary

In this Chapter, I advanced the argument that a revised curriculum that favours research requires a different approach to conceptualising our curriculum and offered some insights on how this could be approached.

Section 1 introduced the chapter by reiterating what was found in the previous chapter: that a critical curriculum requires a different approach to curriculum action than classical curriculum approach, and that the purpose of such a curriculum is to determine the reasoned 'why' particular changes should be implemented in practice.

Section 2 of this chapter introduced the concept of a curriculum and outlined the classical and alternative models of curriculum design. A curriculum is a design for determining *what* one should teach, *how* it should be taught and *why* it is important (Sockett, 1976:60). Curriculum design is an activity that needs to be performed by academics that in most cases are not necessarily trained in curriculum analysis. The classical approach of curriculum design is referred to as planning by objectives (PBO). This system starts by outlining the Aims, Goals and Objectives (AGO) of the curriculum in terms of predetermined outcomes (Wilson, 2013). These are stated in terms of behavioural changes in students and as such is firmly based in the behavioural model of teaching. Grundy (1987) classifies this as a curriculum of product that exists outside the producer or system i.e. the curriculum becomes a set of documents that pre-specifies a set of learning material that students must master and be assessed on. The outcome of such a curriculum is a product i.e. the amount of knowledge that the student has acquired. A second alternative approach to curriculum development is a curriculum as process. In such a process, the curriculum is developed dialectically between the teacher, student and educational system. The outcome of such a process

is a student that is able to learn and not a pre-specified knowledge objective. A third alternative is a curriculum of praxis. In such a curriculum, the teacher and student are both participants in the process of learning. This process is led through a 'problem-posing' system of education where students and teachers engage with the real problems of learning and teaching (Grundy, 1987:104). In a curriculum of praxis, the learning outcomes are not (cannot be) pre-specified as it is developed reflexively between the student and the teacher as a result of real-world action and reflection. This process requires an inductive approach to curriculum development where learning is guided by the circumstances and the needs of the educator and the student (Grundy, 1987:135). This learning process does not start and end in the classroom but interacts in the broader political sphere of education.

Section 3 of this chapter outlines the definition and application of Praxis in curriculum terms. Praxis is a broad concept that informs how we live in society and is not specifically directed at a particular field or profession (Squires, 1999:116). Praxis is rooted in the Aristotelian concept of phronesis (practical wisdom) that determines morally good actions. Phronesis is a moral capacity to act in a good way (Aristotle, NE 1140b4-5). Praxis is intimately related both to living well (eudaimonia), reasoning well (dialektika) and behaving well (phronesis). The aim of such a system of education is to develop good citizens and good communities through good thought and good actions. An epistemology of praxis is based on practical decisions both by the educator and learner on *what* to teach, *how* to teach and *when* to teach (Schubert, n.d.).

Section 4 of this chapter presented a broad overview of Aristotle's phronesis and its link with the elements of circumstances. Good actions and good character lie with good reasoning and good choices. For Aristotle, good actions are determined according to the mean of the particular circumstances that a man of practical wisdom (phronesis) determines. A practically wise man will therefore do the right thing (what) at the right time (when) for the right reason (why) and so forth. These propositions have been encapsulated into a theoretical framework that is contemporarily referred to as the elements of circumstance. "Therefore it is not a pointless endeavour to divide these *circumstances* by kind and number; (1) the Who, (2) the What, (3) around what place (Where) or (4) in which time something happens (When), and sometimes (5) with what, such as an instrument (With), (6) for the sake of what (Why), (7) such as saving a life (Which), and (8) the (How), such as gently or violently…And it seems that

the most important circumstances are those just listed, including the 'Why'" (EN, 1111a.15-20 in Sloan, 2010, 240). These elements have been used liberally in fields such as journalism, law, theology, arts, education, business and information systems. They have also been used in revived theories and methodologies such as phronetic social science (Flyvberg, 2005) and Casuistry (Jonsen and Toulmin, 1988). These elements have become so widely used in the English language as a set of interrogative questions that the original theories and processes that Aristotle had established for applying them in moral conduct have all but disappeared.

Section 5 of this chapter outlined Aristotle's system of practical reasoning. Aristotle's system of practical reasoning is not self-evident in his extant works (Anagnostopoulos, 2009; Aydede, 1998; Eikeland, 2006). In line with Finnigan (2006) and Smith (1998), I contend that Aristotle's method of practical reasoning is essentially dialectical. Dialectics is the knowledge of which of two opposing choices are better i.e. the knowledge of what is *good* for a person (Int, 20b20-21). Dialectics has its roots in the practices of Socratic questioning but was further developed into a system of reasoning by Aristotle. For Aristotle, this meant determining the right actions in the right circumstances. For example, arriving at a ball (dance) in a soccer outfit, or at a soccer game in a ballgown is not considered to be practically wise. The practically wise person will thus determine what the appropriate course of actions are depending on the circumstances. These choices are determined by the actions which are under his control. These require the practically wise person to determine what is the right thing to do, when to do it, how to do it, where to do it, with whom to do it, which tool or resource to use, what the occasion is and why he should act in this way. This is what Aristotle refers to when determining the right means to an end. This requires a reasoning process of which is the best course of action. Aristotle refers to this process as dialectical reasoning. Modern developments of this method are those of Hegel, Marx, Husserl, Heidegger and Gadamer (Dybicz and Pyles, 2011:303–5).

Section 6 outlines what it means to argue dialectically for Aristotle. For Aristotle, this means to argue from a particular point of view or perspective. Aristotle realised that because everyone had an opinion on a matter, it would be useful for the philosophers to have a system of reasoning to determine from what basis such arguments should proceed. In this way, he established a system of argumentation based on a five-part process, namely 1. Securing of propositions, 2. Distinguish the

number of senses in which they are used, 3. Discover the differences between them, and 4. Determine the similarities and 5. Define the topics or subject of reasoning. The outcome of such a process of reasoning should leave us with a number of alternative but similar choices. In this way we can rank these choices and determine the best course of action based on the circumstances. This also develops our abilities to 'judge' the most suitable course of action. Aristotle outlines 56 different ways in order to judge which choice is the most desirable, once they have been identified. Even though dialectics has at its core a system of argumentation (reasoning), it does not mean that it represents a system of 'arguing', something which Aristotle refers to as contentious reasonings. The purpose of dialectics is to reach an agreement as to the best course of action, both individually and in a group. Such a system of practical reasoning can be reduced to a system of 'problem-solving' in order to agree (in a group) on the best course of action.

V.7.i Conclusion

In this chapter I presented an epistemological basis for a curriculum of Praxis that is rooted in Aristotle's gnoseology and more specifically his concept of phronēsis or practical wisdom. In a curriculum of praxis, the curriculum is developed contingently based on the interaction between the teacher, the student, the curriculum and the educational system and is not pre-specified such as in the classical planning models. In this way, I presented an epistemology of praxis as an ongoing decision between the educator, the student and the educational system of *what* to do in class, *when* to do so, *where* to do it and so forth for all the other elements, depending on the circumstances. In this chapter I also recognised the pervasiveness of these elements in contemporary practice and call for a return to the Aristotelian roots of Topics and Dialectics in order to operationalise such a valuable framework. This suggests a process of reasoning about the most suitable choices of action, based on their differences and similarities. At the heart of such a system of reasoning lies Aristotle's theory of well-being (eudaimonia), where our human character and actions determine our lives and those of others. It is in this vein that such a system of dialectical reasoning is presented in order to determine the most appropriate means to our educational ends. How such means are determined in this thesis is operationalised in the next chapter with the examination of the research methodology.

“If it were only equally easy to give a definite conception of happiness,
the imperatives of prudence would correspond exactly with those of skill,
and would likewise be analytical. For in this case as in that, it could be said:
"Whoever wills the end, wills also (according to the dictate of reason necessarily)
the indispensable means thereto which are in his power."
(Kant, 1988:Section 2)

Chapter VI Research methodology

"The virtues we get by first exercising them…For the things we have to learn before we can do them, we learn by doing them" (Aristotle, NE, 1103a32-33).

A RESEARCH methodology *"involves meta-theoretical concerns and an overall strategy of conducting research such as research design, selection and adoption of research methods and techniques and arguments for knowledge construction and justification"* (Cecez-Kecmanovic, 2011).

VI.1 Introduction

In the previous chapter I presented an epistemological basis for a curriculum of praxis. Such a curriculum is developed interactively in context through exploring *what* is taught, *how* it is taught, *when* to teach, *who* to teach and *why* to teach. This epistemology breaks from the traditional curriculum development process of planning by objective to become a curriculum where researching one's practices becomes central to the process. My research question of how to teach students to learn is central to a such a process of research.

In the first Section of this chapter, I present such a design for curriculum action, referred to as 'curriculum action research' and argue why an implementation of critical emancipatory action research (CEAR) is most suited approach to conceptualising a curriculum of praxis. CEAR is represented as a cyclical process of planning, acting, observing and reflecting. The six cycles of CEAR that I engaged with over the course of three years of teaching three cohorts of third year IS students on becoming self-directed researchers is represented in Section VI.2.v. 'Curriculum action research cycles.

In the second part of the chapter, I present my chosen methodology for researching the effects of my teaching. For this, I adopted phronetic social science (PSS) as a guiding research method and used my own interactions and reflections over the three years with the students, together with the students' actions and reflections as an empirical basis for this study. PSS is a method that aims to provide relevant, appropriate and contextual understanding of human social action. PSS is a suitable

method for researching a curriculum of praxis as it is also derived from Aristotle's phronesis. PSS is, however, limited in its methodological guidelines, and for this reason I explored Aristotle's method of rhetoric, categories and topics in greater detail in Section VI.4 'Method of Analysis' in order to formalise such a method. I outline the case study data, the research participants and the case records and sources in Section 5.

In the final section of the chapter, I represent the process and preliminary results of the application of the method of analysis. These cycles of praxis were used to analyse the corpus of student reflections in terms of answering my research question on 'How' I taught and 'How' students learned to do research. In this section I also present the overall theoretical framework of the teaching context based on the elements of circumstances, which I used in the subsequent chapter in order to present my findings.

VI.2 Research design

Learning how to teach in IS has more to do with the field of education as applied to IS, than to a specific IS competency itself. Teaching skills are not considered to be part of the UG curriculum in IS. Thus, being employed as an educator in IS, based on having a Master's degree, required me to teach myself. I had not been exposed to the theories and practices of education, and thus learning to teach students on how to learn meant that I had to "research" my own teaching practice as well.

In education, approaches to "researching one's own teaching practices" are classed under curriculum action research (McKernan, 1996), reflective practitioner (Schön, 1983; Schön, 1987), action science (Argyris, 1995), or scholarship of teaching and learning (SoTL) (Beaudoin, 2012; Pecorino and Kincaid, 2007; Potter and Kustra, 2011). For Kemmis (2010), educational action is fundamentally praxis in both an Aristotelian and Marxist sense, in that it involves morally informed action by the educator, as well as to shape social structures and conditions for education (Kemmis, 2010). In an epistemology of praxis, the educator is in the best position to research his own practices in order to improve them.

> "On this view, practitioners themselves are best positioned to be educational researchers – doing *practical philosophy* that aims to evaluate their own individual and collective *praxis* in the light of tradition and in response to current and emerging conditions and circumstances" (Kemmis, 2010:20).

They also have an obligation to share these practices with the wider community in which they operate (Carr and Kemmis, 1986; Kemmis, 2010; McKernan, 1996; Smith, Edwards-Groves and Kemmis, 2010; Stenhouse, 1975)[lxxxvii].

VI.2.i Critical Educational Research

There are many diverse kinds of educational research in operation, primarily shaped based on their knowledge orientation, but at their core, they retain the relationship between knowledge and action (Eikeland, 2007). For McTaggart (1991), critical educational research is the praxis of a critical-epistemological perspective. Eikeland (2007) approximates this to praxis-learning and research. Critical educational research is "an organised programme of educational reform" understood in terms of Marxian 'revolutionizing practice', Habermas's 'conduct of political struggle or Freire's 'problematization-conscientization – praxis'" (Carr and Kemmis, 1986:186).

> Critical educational research "is…simply a form of self-reflective inquiry undertaken by participants in social situations in order to improve the rationality and justice of their own practices, their understanding of these practices, and the situations in which these practices are carried out" (Carr and Kemmis, 1986:162).

This approach positions educators as social reformers of education in a wider society, and focusses on issues of more just and democratic forms of education and how political action can be taken to redress the inequities of the past (McKernan, 1996). It not only considers the theoretical imperative of the curriculum, but also how practitioners live and work in the greater context of education and society.

> "When those researchers – those in universities, for example – enquire into their own educational praxis (for example by reflecting on the cultural and historical conditions that shape their praxis), however, it is likely that their research is both within a practice-tradition of research (a research praxis) like participatory action research and within a praxis-tradition of education" (Kemmis, 2010:23).

In praxis research, the researcher is the practitioner, and the practitioner is the researcher (Kemmis, 2010; Mathiassen and Sandberg, 2012). Furthermore, research is praxis, and praxis is research (Lather, 1986). McKernan outlines five criteria of such

a praxis for a critical educational research based on the work of (Carr and Kemmis, 1986:129–30):

1. "Must reject positivism's notions of rationality, objectivity and truth, in particular that knowledge has an instrumental value in solving social problems"
2. "As a social practice, it must grasp the meanings used by those that perform the practice"
3. "It must provide ways of distinguishing ideologically distorted interpretations and engage in language, social relationships and practice to overcome these"
4. "Needs to provide ways in overcoming social injustices"
5. "Educational status is determined by the ways in which participants are empowered to continue the struggle for social inquiry and improvement."

From a curriculum of praxis perspective, the core components of such research are action and critical reflection as outlined in Chapter V Curriculum of Praxis.

> "An emancipatory curriculum entails a reciprocal relationship between self-reflection and action (Grundy, 1987:19).

A curriculum of praxis therefore needs to incorporate both action and reflection in a dialectical nature (Carr and Kemmis, 1986).

VI.2.ii Action research as professional development

Action research is firstly an approach for researching one's own actions in context, and secondly as a means of professional development (O'Hanlon, 1996). As such, it is a methodology that is well suited to scholarly teaching (ST) as well as the Scholarship of Teaching and Learning (SoTL) (Potter and Kustra, 2011). Part of the reluctance to use action research for ST (O'Hanlon, 1996), is the proliferation of instructivist, positivistic notions of education which encourage efficiency in teaching, particularly through the use of technologies (Pedersen and Liu, 2003). Yet recent research emphasises the needs for teachers to research their own practices (Hagevik, Aydeniz and Rowell, 2012).

> "Action research is an educational procedure because it uses investigation and enquiry as a basis for the collection and interpretation of data, with the aim of improving the quality of action in the situation or case under investigation" (O'Hanlon, 1996).

Action Research also doubles as an effective means of staff or professional development (Hagevik, Aydeniz and Rowell, 2012; Kember and Gow, 1992; Mattes, 2008; O'Hanlon, 1996). Action research as a professional development approach is mainly participatory in nature (internally driven), which can be in conflict with staff development programmes that are mostly externally directed (Kember and Gow, 1992:306–9). The difference between the internal/externally driven approach depends on whether the initiative for development lies with the lecturer or the institution. This impetus can be through staff development programs in education or self-directed through exposure to action research workshops or small-scale research projects such as in my case.

These small-scale projects can be structured either by discipline or focus areas across disciplines. (O'Hanlon, 1996) claims that a key concern when introducing action research as a means of staff development is the level of expertise and familiarity that lecturers may have in terms of researching their own practices. Discipline-based research mostly follows a different way of inquiry than AR has. In many disciplines, she writes, positivist quantitative research prevails, which does not lend itself well to the qualitative hermeneutic approach favoured by action research. Another of her concerns is that discipline-based research is mostly individual, yet action research requires collaboration amongst participants. Action research inter-alia fosters practitioners' abilities to (O'Hanlon, 1996):

- "be able to take *self-initiated* action and to be responsible for those actions"
- "be capable of *intelligent choice* and self-direction"
- "be *critical learners*, able to evaluate the contributions made by others"
- "have acquired knowledge relevant to the *solutions of problems* and the creation of *better quality teaching and learning*"
- "be able to *adapt* flexibly and intelligently *to new and changing situations*"
- "have internalised a means of coping with complex situations by utilising all pertinent experience freely and creatively"
- "be able to *collaborate* effectively with others in these activities"
- "work, not for the approval of other's, but in terms of their *own values and ideals*"

In this way, action research adds to the development of the educators' repertoire of teaching and research, whilst also improving the relationships and environments in which they are active in. As such, curriculum action research is entirely suitable as an

approach to explore my research question on how to teach students to be critically reflective and self-directed, and secondly to guide my own development of eLearning how to teach and become a critically reflective practitioner.

VI.2.iii Curriculum action research

There are many diverse kinds of action research in operation that are shaped according to their knowledge interest, but at their core, they retain the relationship between knowledge and action (Eikeland, 2007). One approach to such a form of research in education is referred to as Curriculum Action Research (CAR) (McKernan, 1996). The aim of CAR is not merely to understand the constraints that are faced by education but to change it (Carr and Kemmis, 1986:156). This requires both a first-hand involvement in the practical situation, and a recognition that one's own actions are constrained by the very system that one wishes to change.

> "The 'objects' of action research-the things that action researchers research and that they aim to improve – are their own educational practices, their understandings of these practices, and the situations in which they practice" (Carr and Kemmis, 1986:162).

Curriculum action research is seen as a transforming practice, dialectical, a social process and active (Carr and Kemmis, 1986:181–83). *Transforming* means that it is a historical process of changing practices, understandings and situations i.e. things are added and removed along the way to form a new situation. It is *dialectical* in that it juxtaposes dialectical opposites of theory vs. practice, rhetoric vs. reality, understanding vs. situations, individual values vs. institutional structures and rewards. It aims at seeing how situations constrain ones' practices and how one can transform those situations.

Action research is a *social process* as it emphasises the social interaction and making *action* meaningful through sharing by means of language. It accepts that knowledge is socially constructed and aids in constructing a new knowledge based on fair and just principles i.e. phronēsis. For curriculum research to qualify as action research it needs to meet three basic criteria (Carr and Kemmis, 1986:165):

1. "It takes as its subject matter a social practice (of teaching and learning), regarding it as a form of strategic action susceptible to improvement"

2. "The project proceeds through a spiral of cycles of planning, acting, observing and reflecting, with each of these activities being systematically and self-critically implemented and interrelated"
3. "The project involves those responsible for the practice in each of the moments of the activity, widening participation in the project gradually to include others affected by the practice, and maintaining collaborative control of the process"

Action research is reflexive in nature, i.e. it is a process where researchers are researching their teaching and teachers are teaching their research. Therefore, unlike a technical rational approach, such an approach lends itself to reflexively examine its own practices. It is therefore ideally suited both to researching one's teaching as well as in designing and 'actioning' ones teaching activities in the classroom.

VI.2.iv Action research cycles

In order to operationalise an action approach to research, Carr and Kemmis (1986) propose an expanded reflective model of plan, act, observe and reflect derived from the works of Lewin (1946) and formalised at Deakin University in 1981 (Carr and Kemmis, 1986:164–65; Kemmis and McTaggart, 1988). The process involves a sequence of steps in terms of reflective spirals or loops, where a general plan is formulated, action implemented, action observed, and a reflective critical evaluation to revise the plan for the next cycle as represented in Figure VI.1 below.

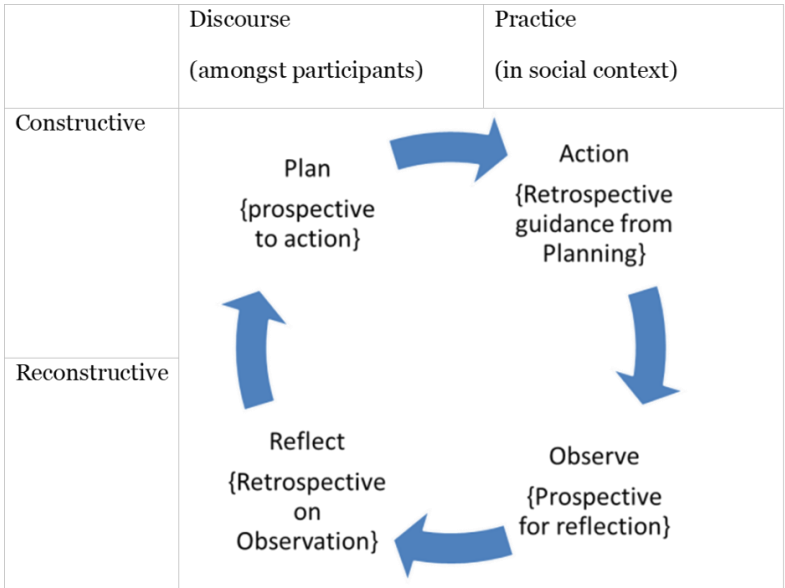

Figure VI.1 Deakin Action Research Model (Carr and Kemmis, 1986:186)

These four cycles can be described from the works of Carr and Kemmis (1986:186) as follows:

Planning: Starts with an idea or problem that requires solving. Planning is prospective to action, but retrospectively constructed on the basis of reflection.

Action: A deliberate step into the future that planning cannot foresee or reflection cannot justify. It also requires a commitment (based on practical judgement) to achieve anticipated consequences. Action follows planning but precedes evaluating (observing) the outcomes of such steps. This step does not involve dialogue but action.

Observation: The process of looking back at the action and determining what happened.

Reflection: Takes place on three levels, i.e. the technical, practical and critical level (O'Hanlon, 1996). Reflection comes after observation and is aimed at evaluating what one observes in order to guide future actions.

The value of the model is that it provides a simple overview of possible stages of curriculum action research. It has inherent limitations in that it does not express the richness of these actions through abstraction. This also has implications in that knowledge derived from action is historical, as it considers the historical constraints and enablers that make us who we are in those particular circumstances. One of the concerns with action research is that it makes sense of a situation retrospectively[lxxxviii]. Action research thus requires a different epistemological basis than traditional curriculum planning, i.e. it requires an epistemology of praxis (Eikeland, 2007; Eikeland, 2012).

VI.2.v Curriculum action research cycles

The following diagram, Figure VI.2 Cycles of Reflection and Action, illustrates the application of the curriculum action research approach that I followed. These cycles extended over a period of three years with three different groups of students and are based on the action research cycles of plan, act, observe and reflect (Kemmis and McTaggart, 1988). The stages in the diagram are labelled as (P)lanning, (A)ction, (O)bservation and (R)eflection.

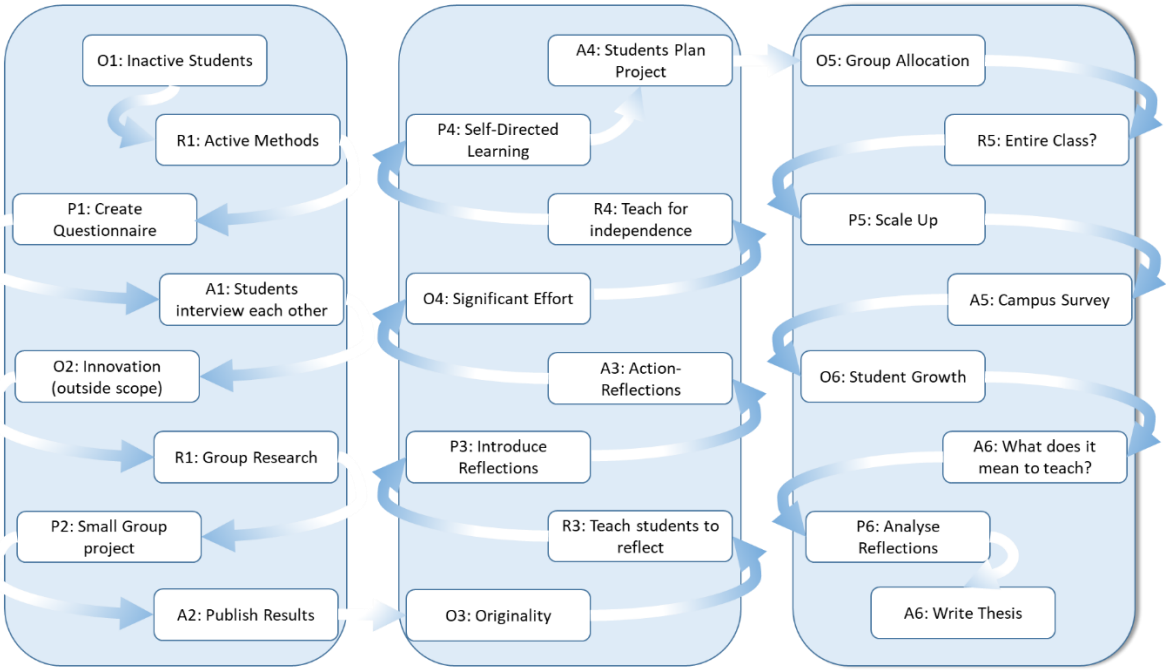

Figure VI.2 Cycles of Reflection and Action

Without pre-empting the research findings, this model illustrates the progression of my teaching approach as well as the scale of the projects over the three years.

Cycle 1: The first cycle illustrates the progression from observing inactive students in the class (my RQ2 on students not participating in class) to the introduction of active learning methods by designing research questionnaires and having the students fill these out in class. This cycle was directed to my RQ4 on making research fun for students.

Cycle 2: One of the unintended benefits of this active process was that one of the students took it upon himself to survey three additional students on campus. On reflection this gave me the idea of getting a small group of students to continue with research by capturing and analysing the results from the survey that the students did in class.

Cycle 3: In the process of writing up their research reports, I noticed (and measured) high levels of plagiarism. This prompted me to find a way to get students to be more original (Directed at RQ on how I can get students to do original work). One of the ways was to introduce reflections in class and for assignments so that students had to write their own thoughts rather than those of others.

Cycle 4: Continuing on from the research project of the previous years, I divided the students into ten different research teams. Although I arranged a 'supervisor' from one of the related departments for each group, this resulted in significant effort. I thus reflected that I should 'coach' students to do their own research (RQ5), and thus had one of the groups 'plan' the research project for the following year.

Cycle 5: This cycle saw the entire class conduct a quantitative survey of over 2000 students on campus. Not only did they manage to successfully plan and execute the entire project on their own, but they wrote about these experiences in a very original and creative way.

Cycle 6: During the last cycle I was questioning what it meant to teach (RQ1), and by analysing the students' reflections according to the elements of the circumstances, gave me deep insights in to *how* I taught, *what* the students learned, *where* they learned, *with* whom as well as *how* they learned and *why*.

This process outlines the methodology of curriculum action research that I used to guide my teaching activities and reflection in the classroom. The following section will outline the method and process that I followed for making sense of these activities.

VI.3 Case study data

This section outlines the unit of analysis, the research population and sample, as well as the approach that I followed to ensure ethical conduct of this research. It further outlines the case study, records and data sources that I used for the research.

VI.3.i Unit of analysis

The unit of analysis in this dissertation is my own teaching and learning practices and the effect that this had on the students that I taught.

> "The 'objects' of action research-the things that action researchers research and that they aim to improve – are their own educational practices, their understandings of these practices, and the situations in which they practice" (Carr and Kemmis, 1986:162).

This means that I researched myself, my teaching, and the context in which it occurred. This included an analysis of my own teaching practices as well as the students learning, in the context of a 3rd year course in Information Systems in the

Faculty of Economics and Management Sciences at a higher education institution in South Africa.

VI.3.ii Research Participants

The population for the research was thus myself as well as the full class of third year students in each of the three consecutive years. The sample for this study was obtained from a representative selection of students over the course of three years. A selection of the students and their reflections were taken because the volume and amount of coding that would have been required for all the students would have been too onerous without necessarily providing any more richness in the data. The selection criteria are indicated in the following table:

Table VI.1 Population sample and selection criteria

Year	Pop	Sample	Case	Selection Criteria
Year 1	59	10 (17%)	C2	The 10 students who participated in the group research project
Year 2	24	21 (88%)	C1	Students who elected to conduct individual research projects.
	47	8 (17%)	C3	The eight students (one group) that conducted research on smartphone usage amongst students.
Year 3	100	25 (25%)	C4	A selection of the team leaders in each group as well as one or two other students from each group.
Totals	230	64 (27%)		

I am a mid-career white South African, with more than 15 years' experience in the software development industry as a software developer, analyst, architect and IT consultant. This thesis documents my change in career to teaching in higher education after I had completed my Master's degree in Information Systems at UCT in 2008.

The cohort comprised a diverse population group of South African students that are drawn mostly from the surrounding area of SAU. The ages of the students in the class ranged between 19 years and 23 years (there were a few exceptions) with the median at 21 years. As such, the student grouping remained relatively homogenous across the three years.

Because the sample was split in year two between the students that participated in a group and those doing individual projects, some insights were obtained on the difference between group work and individual work as indicated in Table VII.8 Comparison of Individual and Group work. This was also why a larger percentage of students working individually were selected (88%) than from those working in groups

(17%). This selection did not however allow for a true 'control' group, where this teaching approach was not used, in order to compare the outcomes.

This is a limitation inherent in the design study of the study, as one would still require course reflections from the control group, which may, in itself, be limited in scope and nature because these students would not have been trained in the process of reflection, as such training is inherent in the teaching approach. The responses of the students do however indicate how this approach was different from their other courses (previous and same year), as will be seen in the analysis of the data.

VI.3.iii Research ethics

The convergence of teaching and research (Baldwin, 2005; Trowler and Wareham, 2007) and the rapid adoption of the practices of SoTL in HEIs (Beaudoin, 2012; Pecorino and Kincaid, 2007; Potter and Kustra, 2011) has added new pressures both to research practices and the publication of the results of such research. This convergence requires the use and reporting of students' work and assignments in ways that have not been or normally catered for by institutions (Burman and Kleinsasser, 2004). Questions such as what processes faculty should use to inform students that their work may be used, the rights of students in terms of authorship, or the influence that such participation or work may or may not have on their results require clarification both in teacher education and in practice and become increasingly relevant.

Some of the ethical concerns that I experienced during this project were authorship of the students' works, power relations and volume of work. The way that I managed these was to include the students as co-authors in papers where they were co-researchers and participated in the compiling and writing of the final research paper. In the case where the students were involved in the instrument design, preliminary research and administration of the questionnaire, they are acknowledged. In the case of using students' reflections in my dissertation, I used their initials to indicate that it was their work. Even though students gave me permission to use their names in my study, modern ethics procedures shy away from this, so I chose to use their initials. When I shared examples of reflections from previous years with later students, I first asked the students concerned for their permission to do so. An ethical waiver to conduct this study was obtained from the UCT Ethics in Research

Committee. Ethics clearance for the students to conduct their research project was obtained from SAU Research Committee. Research ethics is typically concerned with a number of aspects of ethical conduct[59], some of which will be highlighted here together with the methods I used to design the research in order to be sensitive to these aspects as outlined in *Table XII.12* in the Appendices.

VI.3.iv Case records

For McKernan (1996:75), case records are *"theoretically parsimonious records, consisting of a condensing of the total action and data"*. These can be particularized to theoretical constructs from the fields of inquiry for curriculum research (McKernan, 1996). In education, case records are brief synopses of all the case data, focussing on specific aspects, depending on what the researcher determines as issues to be highlighted (McKernan, 1996:81). These are often referred to as teaching portfolios (Borko et al., 1997), and are particularly useful for curriculum research and reflective practice. In case studies, conceptual frameworks are used to organise and analyse the rich sets of qualitative data (McKernan, 1996). I organised the case records by using the theoretical perspective of Aristotle's Elements of circumstances. I particularised these to curriculum concepts as used by McKernan (1996:64) as seen in Table VI.2. below. Based on the elements of circumstances, the case record should contain a parsimonious extract of all the necessary elements, i.e. who, what, when, where, how, why, with, which, etc.[60].

Table VI.2 Elements of circumstances mapped to McKernan (1996:64)

Element	Element	Description
Why	The Purpose of the project	Define the puzzle that has prompted research into the issue. What was the aim or purpose of the intervention?
Who	Research Group or Population	Who in the research setting? This can include students, academics, administrative staff etc.
What	Events and Activities	What is going on? Who talks with whom? What tasks are performed and what activities?
Which	Content	What is the content of messages passed, Which are the subjects and topics of discussion? Which Theories and Concepts are communicated?
How	Ways of research	Observation, Interview, Casual Conversations
Where	Describe the research setting	Map out the setting, which illustrates space and its use
With	What special resources, equipment is needed?	Artefacts, symbols, objects and what they mean to actors.

[59] From UCT's 'Ethics in Research Handbook, SAU's 'Policy on Research Ethics', the AIS 'Code of Research Conduct', and the APA 'Ethical Principles of Psychologists and code of conduct'.
[60] These elements are well established in the methodologies of Teaching, Action Learning, Casuistry, and Curriculum Research as shown before.

Element	Element	Description
When	When and Regularity	When events happen and with what regularity
Whether	Analysing the data, motive force	Search the data for themes, recurring ideas, and issues of power or control.

Structuring the case record in this way allows for a rapid overview of a particular course or case, as well as consistency in comparing different cases. This allowed me to compare cases with each other, as well as easily identify where differences or similarities occur.

VI.3.v Data Sources

Praxis research does not pre-specify any particular sources of data, although it is inferred that because action and reflection form the basis of praxis that methods that are suited for recording such activities would be most suited. Curriculum research and action research in general provide some guidance as to appropriate sources of data for curriculum inquiry. These can sources such as *"transcripts, diary entries, field notes, video or audio recordings, letters, documents, research diaries, participant diaries"* that were developed during the course of the research (McKernan, 1996; McNiff, 2002; Stenhouse, 1975). In this dissertation, I used the following forms of primary, secondary and tertiary data.

1. Primary data

During the normal course of teaching, a lecturer would create class notes, presentations, tests, exams and assignments, as well as rubrics and exam memos and send/receive emails. To supplement this data, I also used reflections both my own and my students. My primary sources of data (FIN Research, 2010)[lxxxix] therefore comprised:

- Personal Reflections: more than 700 reflections, notes, ideas and quotes that I captured in Evernote and Simplenote[61]
- Written Diary: more than 300 entries from my seven physical diaries (Moleskine ® type), that I scanned into Evernote [62]
- Test Papers: one test paper and students' reflections thereon

[61] See Evernote: S.Reflections
[62] See Evernote: S.Notes

- Student assignments and reflections: more than 60 out of 200 that were used in the analysis. Each reflection was more than ten pages, resulting in excess of 600 pages of reflections that were analysed

Most of these reflections were loaded into Evernote, which is indexed and searchable. The reflections were also sanitised and imported into NVivo for further analysis.

2. *Secondary sources*

Secondary sources are related works written on the subject of interest, i.e. biographies, academic papers, books, conference proceedings, study and teaching material, etc., typically created after the event, and are normally based on primary sources (FIN Research, 2010). My secondary sources of data comprised:

- Course records that I had compiled;
- Library books;
- Works of Aristotle;
- Journal articles and conference papers.

These sources were loaded into a reference management tool (Mendeley), which is searchable and allows ordering and structuring of references according to author, subject, tags or folders.

3. *Tertiary sources*

Tertiary sources are re-packaged information sources e.g. abstracts, bibliographies, dictionaries, Encyclopaedia's, websites, certain textbooks, manuals, statistics, census reports etc. I mostly used the following tertiary sources:

- Merriam-Webster Dictionary (*The Merriam-Webster Dictionary of Synonyms and Antonyms*, 1992)
- Roget's Thesaurus (Roget, 1911)
- Online Dictionary of Etymology (Online Etymology Dictionary, 2010)
- Stanford Encyclopaedia of Philosophy (Studtmann, 2013)
- Dictionary of Education (Wallace, 2015)
- Wikipedia (Wikipedia, 2017)

In order to structure and organise my case data, I created a folder on Dropbox for each module/case, comprising, firstly, the class list which I would get from the

administrator at the start of the semester, the course outline, a folder for presentations that I presented to the class, assignments folder for all the student assignments, and a folder for the exam assignments. Assignments were posted and submitted by students to the University's E-Teaching system. I exported the assignments and notices that I placed into Evernote and then to Nvivo for further analysis.

VI.4Research method

The secondary method that I followed for researching the effect that my teaching had on the students is referred to as Phronetic Social Science (PSS). The reason why I required a secondary research method was because action research is primarily directed at enhancing one's actions in a particular context, and for making choices and decisions in such context, but is not ideally suited to provide a deeper contextual understanding of such choices and for analysing and sharing such outcomes in the broader context of SoTL

VI.4.i Phronetic Social Science

Phronetic Social Science (PSS) aims to provide relevant, appropriate and contextual understandings of human social action. This requires a science that considers the dynamic nature of human action in context and does not strive for rule-based predictability such as the Natural Social Sciences does. Phronēsis is not episteme or techne (Eikeland, 2007), in that it has a different aim, namely that of analysis and praxis (Flyvberg, 2001). PSS can be conceptualised as *"Ethics. Deliberation about values with reference to praxis. Pragmatic, variable, context-dependent. Oriented towards action. Practise. Based on practical value-rationality"* (Flyvberg, 2001:57).

> "Phronetic social science explores historic *circumstances* and current practices to find avenues to praxis" (Flyvberg, 2001:140).

The focus of a PSS is on value-rationality as opposed to a technical or scientific rationality and results in a pragmatic interpretation of practical action (Flyvberg, 2001:140)[xc]. PSS privileges the analysis of particular cases and theoretical knowledge is derived in the context of general prior cases, topics, issues and judgements (Flyvberg, 2001; Mjøset, 2009)[xci], much like casuistry (Jonsen and Toulmin, 1988).

> "The task of phronetic social science is to clarify and deliberate about the problems and risks we face and to outline how things may be done differently,

> in full knowledge that we cannot find ultimate answers to these questions or even a single version of what the questions are" (Flyvberg, 2001:140).

PSS is not an analytic or methodological project and neither does it aim to agree with the status quo, nor attempts to derive deep hermeneutic meanings of practice. In essence a PSS method provides guidelines of how such cases need to be approached but does not necessarily prescribe how they should be conducted. Phronēsis cases appear to have a greater affinity with casuistry (Jonsen and Toulmin, 1988), curriculum action research (McKernan, 1996), the reflective practitioner (Argyris and Schön, 1996; Schön, 1987), action science (Argyris, 1995), and critical emancipatory curriculum action research (Carr and Kemmis, 1986; Mattsson and Kemmis, 2007) than with classical case-based research as outlined in Eisenhardt (1989).

PSS is an appropriate approach to researching a curriculum of Praxis as it is based on the principles of phronēsis by Aristotle (Flyvberg, 2004; Flyvberg, 2001; Flyvberg, Landman and Schram, 2012b). Other reasons are that it 1. "is aimed at improving the social situation", 2. "is considerate of the context and circumstances of such social action", 3. "provides a rich narrative of such social action for analysis" and 4. "is fundamentally based on Aristotle's concept of phronēsis" (Flyvberg, 2001).

PSS is thus ideally suited as a methodological basis for curriculum inquiry that is directed at critical emancipatory action research.

VI.4.ii Generalisability of PSS

One of the objections directed against PSS is that cases are not generalisable (Thomas, 2010:576). What Thomas is saying is that the apparent 'lack of generalisability' of social science case studies is essentially a critique of the inability to form inductions from specific cases, and that such case studies should be merited by *"the offer that can be made in local circumstances by particular kinds of looser generalization"*.

> "The case study thus offers an example from which one's experience, one's phronēsis, enables one to gather insight or understand a problem" (Thomas, 2010:578).

The aim of PSS is not generalisations, but of representing 'exemplary' cases "based on abduction gained and offered through phronēsis rather than through theory" (Thomas, 2010:576). The strength of a phronetic case study is based on the

'merits' of the case in comparison to similar cases. Phronēsis cases are interested in the 'facts' of the case. This does not make phronēsis less valid than the natural science method, as they are both based on 'empirically observable facts. The difference is that scientific theories have taken on an aura of 'fact' in and of themselves, whereas social laws and norms are variable. As Ruddin (2006:801) recognises from Aristotle, phronetic cases are not merely concerned with universals (theories) but with particulars, as it is concerned with human conduct which has its basis in particular circumstances.

The validity of phronetic case studies therefore does not come from theoretical generalisation, but *"through the connections and insights it offers between another's experience and one's own"* (Thomas, 2010:579). By emphasising generalisations from particular cases, traditionalists have established a system of reasoning that takes the 'life' out of the story or history of life. Phronēsis in general and phronetic case studies in particular offer a return to the vitality and richness of everyday experiences that cannot be captured in a moment, but that comes and goes. As Kundera (in Thomas, 2010:575)[xcii] illustrates that in life, things only happen once, i.e. the circumstances are such that that particular situation will mostly likely never be repeated again.

> "History is as light as individual human life, unbearably light, light as a feather, as dust swirling into the air, as whatever will no longer exist tomorrow" (Kundera in Thomas, 2010:575).

This does not mean that one cannot form generalisations from a single case study (Ruddin, 2006; Thomas, 2011). It merely means that the basis for such reasoning is different from traditional approaches. The difference between generalisations from a scientific perspective and a phronetic approach can be equated with the difference between kicking a stone and kicking a dog. The scientific predictability of kicking a stone is dependent on its size. A large stone will injure one's foot, and a small stone will be sent flying. With a dog, one never knows what it will do i.e. run away, bite, cower, fall over, etc. The same goes for the unpredictability of human conduct as their responses are based on their individual *"beliefs, motives, choices"* (Thomas, 2010:579)[xciii]. One may find, however, that particular people act in reasonably predictable ways in similar circumstances, based on their habits. This is what Aristotle refers to as 'Habits' and Bourdieu as 'Habitus' (Bourdieu and Wacquant, 1992a).

> "Now some think that we are made good by nature, others by *habituation*, others by teaching. Nature's part evidently does not depend on us, but as a result of some divine causes is present in those who are truly fortunate; while argument and teaching, we may suspect, are not powerful with all men, but the soul of the student must first have been cultivated by means of *habits* for noble joy and noble hatred, like earth which is to nourish the seed" (NE, 1179b25-27).

The aim of phronēsis is thus to explore these habits i.e. repeated actions that make our character, rather than attempting to formulate a stable representation of action as a theory. Adopting a post-paradigmatic Social Science approach such as PSS, that is rooted in classical Greek concepts, is not without its own difficulties (Flyvberg, 2001:129). The goal of PSS is the exploration of causes and not the formulation of theory (Thomas, 2010). It is the recognition of life events as they unfold and not generalisations resulting in theory. Aristotle cautions that phronēsis and dialectics are contingent, unlike natural sciences methods which are predictable. Yet it is this very unpredictability of human nature that has led to the suppression of phronetic case studies as a valid means of understanding social situations.

VI.4.iii PSS methodology

Flyvberg presents a number of characteristics for PSS that are based on the concept of phronēsis by Aristotle, a Marxist praxis, Nietzsche and those of the critical theorists such as Foucault, Habermas and Bourdieu (Flyvberg, 2001; Schram, 2004) summarised in Appendix XII.3.iii Methodological Guidelines for Phronetic Social Science, with an extract presented in Table VI.3.

Table VI.3 Characteristics of phronetic social science (Flyvberg, 2001:140)

Characteristic	Description
Aim	To provide concrete examples and detailed narratives
Objectives	Explicate how power might be changed and work with other consequences
Past, present and future based	Explores historic *circumstances* and current *practices* to find avenues to praxis
Action or event driven	Practices are recorded as events without initially ascribing meaning
Detailed action	Detailed stories of who's doing what to whom
Task	Deliberate about the problems and risks we face
Focus	Outline how things may be done differently
Doing narrative	Central to describing actors and actions as well as historical context. "Our most fundamental form for making sense of experience."
Limitations	Does not proclaim ultimate answers or even a single version of the truth

Characteristic	Description
Data	Historical analysis, Archival data, participant observation, informants
Analysis	Active interview, Narrative
Distancing	A focus on practices allows "self-removal" in order to evaluate human action in context
Perspective	Sociological, Political, Philosophical
Judgement	Contingent on context-dependant judgement. Cultivated and communicated via the exposition of cases
Socio-historical context	Obtains meaning from the socio-historically conditioned contexts
Contribution	Produces input to social dialogue and praxis rather than ultimate organisational truths.

For Flyvberg (2001), a PSS records historical actions and events without ascribing meaning, and then analyses these events in terms of actions by focussing on the dynamic question of 'How' in addition to the structural question of 'Why'. Due to the embedded nature of action and reflection, a phronēsis approach calls for a casuistic or phronetic case-study approach (Jonsen, 1991; Jonsen and Toulmin, 1988).

> "A case study is a research strategy which focuses on understanding the dynamics present within (a) single setting" (Eisenhardt, 1989).

Thomas (2010:579–81) suggests some key characteristics of phronetic case studies that need to be considered.

Questioning and surprise, intelligent noticing and serendipity: "Questioning is the starting point; serendipity, noticing, and insight provide an elevation, and interpretation based on phronēsis is the key."

Heuristic and incremental chunking: "How does a series of events merge into a story? How are the elements woven together, if at all? What appears to depend on what? What contradicts? Where are there paradoxes?"

Narrative diachronicity: "It is a question of finding the 'sequence of steps' as Becker puts it (Becker, 1992:209) and conjecturing about what is related to what."

Particularity: "There is, in other words, uniqueness to the particular situation, and one should seek to understand this."

Let Intentional state entailment: "We should observe, Bruner (1991) notes, not just what people do but more importantly what they think and feel."

Canonicity breach, and counter factuality: "Case studies, as narratives, have a function in enabling a recognition and an understanding of where the case differs from what is normal or expected."

Context sensitivity and negotiability: "the interpretation of the case is embedded in the inquirer's (and the reader's) own experiences."

Perhaps Analogy: "One case will be compared with another and compared with our own experience. We make sense of the unfamiliar by reference to the familiar, by way of drawing personal analogy."

Eisenhardt (1989) suggests some likely steps that a phronēsis approach might follow as compared to classical case-based research.

Table VI.4 Praxis versus classical case studies (Eisenhardt, 1989)

#	Step	Classical	Praxis
1	Getting started	Definition of research question	Interest or desire to understand and to improve current circumstances
2	Selecting Cases	Theoretical sampling	Whatever is happening now, current action or activity
3	Instruments and Protocols	Multiple data collection methods	Self-inquiry, reflection, collaborative
4	Entering the field	Flexible and Opportunistic	Serendipitous, Actuality, awareness

Praxis cases are triggered by a desire to improve current circumstances. It starts out by selecting a suitable case, and through a process of self-inquiry and critical reflection, attempting to gain an understanding of how to approach the problem. The Action phase of a praxis case starts the phronetic lifecycle of acting and evaluating the circumstances of such action by examining other (prior) cases. From a perspective of contemporary case studies, this comprises Eisenhardt's steps 5-8.

Table VI.5 Praxis versus classical cases cont. (Eisenhardt, 1989)

#	Step	Classical	Praxis
5	Analysing cases	Within-case analysis	Circumstances (what, where, when etc.)
		Cross-case	Inter-cases, Evaluation of differences/similarities between cases.
6	Enfolding Literature	Comparison with similar/conflicting literature	Determining topical issue or concern. Praising virtue and censuring vice (Quantity and Quality)
7	Shaping Hypotheses	Search evidence for "Why" behind relationships	Evaluation of "Why" from case evaluation and topics in order to guide future action
8	Reaching Closure	Theoretical saturation when possible	Uncovering the first cause and its effect (which is first in order of appearance but last in order of reasoning)

Reaching closure in a phrónêsis case occurs when one has traced the problem back to

its first cause, which in most cases means oneself or what is in one's own capacity to do or not do. In this way, the cause is the last cause found, yet according to Aristotle it is the first in the order of occurrence (Aristotle, n.d.).

Flyvberg (2001) recognises a lack of clear methodological guidelines for PSS (Flyvberg, 2001:129), yet contends that most researchers who use PSS do so in spite of this lack of methodological guidelines.

> "it seems that researchers doing phronēsis-like work have a sound instinct for getting on with their research and not getting involved in a methodology, a case in point being the sparseness of methodological considerations and guidelines in Michel Foucault's work" (Flyvberg, 2001:129).

This lack of methodological guidelines does not, however, limit the applicability of PSS to Social Science studies, it merely requires greater effort to conduct.

> "Few researchers seem to have reflected explicitly on the strengths and weaknesses of social science practiced as episteme, techne and phronēsis, respectively. Even fewer are carrying out actual research on the basis of such reflection, and fewer still have set out the methodological considerations and guidelines for a phronēsis-based social science" (Flyvberg, 2001:129).

Although Flyvberg liberally uses Aristotelian elements of circumstances in his work, as indicated in Chapter V, it appears as if he was not aware of the central role that these elements played in Aristotle's concept of phronesis. It is thus to Aristotle's works that we need to return in order to excise a suitable methodology for the analysis of phronesis cases.

VI.5 Method of Analysis

As the previous section indicates, a PSS does have some kind of procedure that is loosely based on Aristotle's concept of phronesis. Through a close reading of Aristotle's text, I have assembled a more coherent approach to analysing moral actions in context. It is also this process that I have used as the method to analyse the corpus of data in this dissertation.

VI.5.i Rhetoric

Even though dialectics lie at the heart of Aristotle's system of moral reasoning, it is through rhetoric that dialectics finds its social expression. For Aristotle, rhetoric is "the faculty of observing in any given *case* the available means of persuasion" (Rhet, 1355b25-30) and is a method to reason on any given subject or topic. Rhetoric is a way of establishing proof or reasoning about past actions in a public sphere (Rhet, 1396a35-b3)[xciv]. Rhetoric is the art that integrates dialectics and sophistical reasoning with moral actions (Rhet, 1359b9-11).

> "Rhetoric is a combination of the science of logic and of the ethical branch of politics; and it is partly like dialectic, partly like sophistical reasoning" (Rhet, 1359b9-11).

Aristotle expounds a system of dialectical arguments as rhetoric, based on three kinds of speeches, namely Forensic speech (Logos), Ceremonial speech (Pathos), and Political speech (Ethos).

> "There are, then, these three means of effecting persuasion. command of them must, it is clear, The man who is to be in be able (1) to reason logically (Logos), (2) to understand human character and goodness in their various forms (Ethos), and (3) to understand the emotions that is, to name them and describe them (Pathos), to (4) know their causes and the way in which they are excited (Telos)". (Rhet, 1356a22-24)

Political speech, then, is essentially about the future, forensic speech is about the past, and ceremonial speech is about or around the present or as he states, what is possible or impossible. At this point, I agree with most readers of Aristotle, as well as with stasis theory and casuistic practice that was derived from the Rhetoric, that there are these three parts of speech that belong to rhetoric. Where I diverge from this narrow view of rhetoric is that reasoning about moral action in the public sphere also requires three other aspects, all of which Aristotle raises in the Rhetoric, namely Categories (Rhet, 1385b5-7), Topics (1403b1-2) and Style or Lexis (Top 1403b1-5).

> "In making a speech one must **study** three points: first, the means of producing persuasion [Dialectics and Topics]; second, the style, or language, to be used [Lexis]; third, the proper arrangement of the various parts of the speech [Categories and Enthymemes]." (Aristotle, Top. Book II. Ch.1 1403b1-5)

Aristotle refers to these three points as 'the way to invent and refute arguments' in the Rhetoric (Rhet, 1403b1). Together, the three kinds of speech (forensic, ceremonial and deliberative), and the three kinds of reasoning (Categories, Topics and Style), complete Aristotle's system of public persuasion. Hence Aristotle's urge to Alexander to study reasoned speech.

> "I urge you to embrace with the utmost zeal the study of reasoned (dialectical) speech (rhetoric). For just as health preserves the body, so is education the recognized preserver of the mind " (Aristotle, RA n.d.:1421a15-20).

Miller (1987:61) claims that Rhetoric as a modern academic practice has lost its link with human reasoning in relation to particular situations, as a naturally occurring social practice, and that these links to Aristotle's special topics should be revived in rhetorical teaching, theory and practice. Eikeland (2006) argues that "By trying to conflate rhetoric, ethics, and dialectics into the same model of practical argumentation, the distinctions Aristotle actually worked with become all but impossible to discern through their text". This makes a revival of Aristotle's method for a practical philosophy extremely complex. A return to his original texts does, however, provide a basis for such a formal system of dialectical reasoning in the public sphere.

VI.5.ii Formulating Definitions

The proper arrangement of the parts of speech, Aristotle refers to as his elaboration of Enthymemes, a matter which he examines in great detail in the Rhet. (Bk I and II). Enthymemes have, at their base, both general and special topics of arguments (Rhet, 1403b12-15")[xcv]. The Example and Enthymeme in Rhetoric has as its equivalent in the Analytics as induction and the syllogism (APo, 71a1-10)[xcvi]. For Aristotle, these form the basis of all arguments and persuasion Rhet, 1356b10-17)[xcvii].

For Aristotle, induction is the starting point of all science (EN, 1139b28)[xcviii], yet all teaching or argumentation should start from what is known i.e. through dialectics (EN, 1139b27 and APo, 71a1-5). [xcix]

> "All instruction given or received by way of argument proceeds from pre-existent knowledge. This becomes evident upon a survey of all the species of such instruction. The mathematical sciences and all other speculative disciplines are acquired in this way, and so are the two forms of dialectical reasoning, syllogistic and inductive; for each of these latter makes use of old knowledge to impart new,

> the syllogism assuming an audience that accepts its premises, induction exhibiting the universal as implicit in the clearly known particular. Again, the persuasion exerted by rhetorical arguments is in principle the same, since they use either example, a kind of induction, or enthymeme, a form of syllogism" (APo, 71a1-10).

The problem, as Aristotle rightfully claims, is that induction can only show by hypothesis whether something belongs or inheres in something but cannot prove that a thing exists; whereas deduction can show the existence thereof in a substance but cannot prove the definition thereof. This becomes a circular reasoning process that has neither a beginning nor an end, a conundrum which Aristotle dismisses out of hand. One cannot therefore, either by induction or demonstration *prove* the essential nature of anything.

> "How then by *definition* shall we prove substance or essential nature? We cannot show it as a fresh fact necessarily following from the assumption of premises admitted to be facts the method of demonstration: we may not proceed as by induction to establish a universal on the evidence of groups of particulars which offer no exception, because induction proves not what the essential nature of a thing is but that it has or has not some attribute. Therefore, since presumably one cannot prove essential nature by an appeal to sense perception or by pointing with the finger, what other method remains?" (APo, 92a35-40).

In order to break this circular reasoning process (APo, 72b32-35)[c], Aristotle introduces a third or middle term[ci] between the Definition (Genus) and the Essence (Property), which he calls the *nexus* or *index*[cii], thereby establishing the link between the existence of something that is identified through induction, and the essential nature of something that is confirmed through demonstration (APo, 92b3-18)[ciii].

> "Can we nevertheless actually demonstrate what a thing essentially and substantially is, but hypothetically, i.e. by premising (1) that its definable form is constituted by the 'peculiar' attributes of its essential nature; (2) that such and such are the only attributes of its essential nature, and that the complete synthesis of them is peculiar to the thing; and thus--since in this synthesis consists the being of the thing-obtaining our conclusion? Or is the truth that, since proof must be through the middle term, the definable form is once more assumed in this minor premise too?" (APo, 92a5-10).

So, although objects and actions can be identified by means of their definition, the validation of these can only be done by means of reasoning. This process of reasoning, he calls a synthesis, which he claims contains the definition of an

appearance[63] in relation to its subject. The formulation of definitions is by induction (or an example in rhetoric), and the existence of something is by demonstration (or a syllogism or deduction in rhetoric), and the combination of the two is by means of reasoning or dialectics. So, together with the three kinds of speech (forensic, ceremonial and deliberative), and the three kinds of reasonings (Categories, Topics and Style), one forms the complete system of Aristotle's system of public persuasion.

VI.5.iii Evaluating moral virtue

Fundamentally, according to Aristotle, moral virtue is about doing-good and the aim is good action (Carr, 2006)[civ].

> "The virtues we get by first exercising them...For the things we have to learn before we can do them, we learn by doing them" (NE, 1103a32-33).

For Aristotle, by exercising (practising) these virtues, one can become perfect in them.

> "Neither by nature, then, or contrary to nature do the virtues arise in us; rather we are adapted by nature to receive them, and are made perfect by habit" (NE, 1103a28-29).

The moral virtue that is required for good action, Aristotle refers to as phronesis. Phronēsis is the faculty of discernment or deliberation of what is right and just in any particular situation (Aristotle, NE). Determining what is right and just in general is a matter of public judgement, which Aristotle ascribes to Praxis. Determining what is right or just in a particular situation is a matter for evaluating the circumstances. One of the first formal ontologies[64] was Aristotle's Categories (Cat. Aristotle, n.d.), a concept that express 'what' something is (i.e. its essence), 'how' it is (its quality), 'how' much it is (its quantity) and 'where' it is (its relation to other things) and how it comes into and out of being or what Aristotle refers to as generation and corruption (Top, 103b20-27)[cv]. As was argued in Chapter IV, this ontology has been obscured for more than two centuries as belonging to the sphere of rhetoric and not moral action.

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[63] Similar terms used or interpreted for Appearances are Phantasms, Notions, Things, Primary Substance, Matter, etc.
[64] From (Ontology in Wikipedia, 2017)

VI.5.iv Analysis procedure

Having surfaced the role of the elements of circumstances in evaluating moral action, it has become possible to reconstitute a methodology for phronetic social science that is firmly rooted in Aristotle's philosophies of phronesis, rhetoric, dialectics, ethics and politics. The development of such a method of analysis was necessary due to the obscurity surrounding the survival of Aristotle's method as indicated before, and no other methodology was suitable for analysing cases dialectically. The following section outlines how I reconstituted such a methodology. Later in this chapter, I will illustrate how I applied this analysis procedure for analysing student reflections. The starting point for evaluating all moral action is through an evaluation of the act and the circumstances surrounding the act i.e. what happened, how did it happen, where did it happen and so forth.

Figure VI.3 Praxis Life Cycle

These cycles of moral reasoning are tabulated in Appendix XII.3.iv Rhetorical Speeches and outlined as a process below:

Cycle 1 – *Historical Action:* Examines past historical action according to the elements of circumstances in order to attribute praise or blame. Examines what is possible, probable and voluntary (Rhet, 1403b12).

Cycle 2 – *Categories*: Examines the categorisation of acts under accidental, generic, specific and particular in order to derive the definition or propositions related to it (Rhet, 1385b5-7).

Cycle 3 – *Topics*: Relate the definition in (2) to general opinions (Topics) on the matter. These are past cases, examples or definitions (Rhet, 1403b12).

Cycle 4 – *Ethics*: Awarding praise or apportioning blame. Comparing the specific case in light of general cases. (Rhet, 1359a11-25).

Cycle 5 – *Political*: Judging or evaluating the conduct in (4) and recommending a future course of action (by appeal to emotion) (Rhet, 1358b1-35).

Cycle 6 – *Rhetoric*: Presenting the judgments in such a way that is understandable, appropriate and well structured (Rhet, 1403b1-5)

The following section will examine the specific method for each of these parts of practical reasoning in further detail.

Cycle 1: Historical Action

The first round of analysis starts by examining past actions, events or activities. The kind of speech that Aristotle propose for evaluation of past actions is that of forensic speech in order to examine *"The characters (ethos) and* ***circumstances*** *which lead men to commit wrong or make them the victims of wrong"* (Rhet, ix.C12, Ross). For the evaluation of cases, Aristotle shows that one needs to consider propositions of universal and particular actions i.e. greater or smaller, justice or injustice, good or harm, honour or disgrace (Rhet, 1359a20-25). At this point, Aristotle claims that the rhetorician needs at his disposal propositions of what is possible/impossible, whether it has occurred or not (Rhet, 1359a11-15). This phase of analysis is guided by the elements of circumstances, and the initial coding is based on the specific elements.

In the Topics Aristotle identifies the elements of circumstances as 'terms that may be dependent on the circumstance' or 'in a given respect' of the case namely *What*

happens at a certain time (*When*)[cvi] (Top, 107a8-10), a certain amount (*How*) (Top, 107a10-12)[cvii], in a certain place (*Where*) (115b12), and to a certain person (Who) (115b15). The other three terms from the element of circumstances (why, with and what) that were presented in Chapter V.4.iv Theoretical Framework of Elements of Circumstance are not discussed in the section by Aristotle but also needs to be considered in the analysis. Following are the rules for analysing the circumstances as outlined by Aristotle in the Topics.

Table VI.6 Rules for Circumstances of Accidit

Element	Rule	Example	Ref
Place (Where)	"In the same way also it is a good thing at certain places to follow such and such a diet"	e.g. in infected areas, though it is not a good thing absolutely."	115b19
Person (Who)	"Amongst certain groups of people, certain customs may be honourable, but not so in general"	e.g. "among the Triballi…it is honourable to sacrifice one's father" but it is not honourable in general	115b22-25
Time (When)	"Again, at certain times "	e.g. no example provided	115b25-30
State (Which)	When can refer both to time or a certain condition (State).	e.g. when one is sick, it is good to take medicines, but it is not so in general	115b25-30

Each of these elements may be defined differently depending on the subject that is being examined, therefore the following high-level codebook was derived from these elements as it applies to education.

Table VI.7 Codebook for Elements of Circumstance in Educational Practice

Code	Description	Examples
Who	Who he is, who is acting, (Who is acting behind the scenes)	Students, Lecturers, Parents, Administrators, Tutors etc.
Whom	Who is being acted upon	Students, Lecturers, Parents, Administrators, Tutors etc.
What	What he is doing	Locating an article, summarizing text writing a review, memorising facts, attending class
Which	What or whom he is acting on, with reference to the right objects	Subject, Theory, Activity
Where	Around what place	Country, Province, City, Town, Suburb, University, Faculty, School, Classroom etc.
When	In which time	Age, Period, Semester, Year
With	With what he is doing it (such as an instrument)	Tools or resources such a PC, books, Internet, Classroom, Blackboard, Furniture etc.
How	How he is doing it (e.g. whether gently or violently)	Method, Approach, Procedure, Style e.g. how to find an article, how to use google docs
Why	To what end (such as saving a life)	Aim or final cause of the action, e.g. to gain a qualification etc.

The first phase of coding (lets refer to it as action coding) is done in order to establish the 'facts of the case'. More specifically in terms of *what* happened, *how* it happened,

where it happened etc. The purpose of action coding is not only to code the elements, but also to be able to provide the evidence (for the later judgement) that something (1) had in fact happened, in the way that it has happened, (2) that it did good or no harm, (3) that the act was less (or more) than alleged, and (4) that it was or was not justified (Rhet, 1417a1-10)[cviii]. Then the objective is to determine what kinds of questions may arise in each case. One way in which this kind of coding enables validation of events is in providing multiple perspectives of the same event, with different students (participants) either corroborating or refuting certain actions and events.

> Much like a group of bystanders at an accident scene being questioned by a policeman in order to determine *what* happened, *when* it happened, *who* was involved, etc.

Initial coding is done through a first pass high level search for the elements e.g. a search for the elements of 'what', 'where', when', 'how' etc. Through the initial coding, a number of derived or related words are also identified and coded. Once a number of documents have been coded, these terms are then used as automated search terms in order to search the rest of the corpus. Please refer to the section on coding the data in Section VI.6.i Collating the data.

Cycle 2: Categorisation of terms

Aristotle's *Categories* identify 'four classes of things'[65] or categories that form the materials of dialectical problems (Top, 105a20-22)[cix]. From these four categories, both propositions and problems are formed by induction and confirmed through reasoning (deduction) (Top, 103b1-4)[cx]. These categories form the 'material of reasoning' or Topics on which further argumentation is made (Top, 108b35-37)[cxi]. Although the significance of these four categories are recognised by later scholars (Smith, 2016:16)[cxii], their application in the definitory process all appears to have been lost over time.

> "What we have said, then, makes it clear that according to our present division, the elements turn out to be four, all told, namely either (1) *property* or (2) *definition* or (3) *genus* or (4) *accident*. Do not let any one suppose us to mean

[65] The Ross translation uses the term 'predication' which according to Anton (Anton, 1992:12) should properly be referred to as *kategoria*. In the following section, I have used the term (*a kategoria)* instead *of* 'predicated', and *'kategoroumenon'* instead *of* the term 'predicable' in the text in order to illustrate Anton's terminology. I have also numbered the five *kategoria* that I identify in this sentence.

> that each of these enunciated by itself constitutes a proposition or problem, but only that it is from these [categories] that both problems and propositions are formed." (Top, 101b22-28).

A fifth category, the 'species' can be added to these four as a classification of the relative propositions between the Genus and the Properties. These five topics[66] together can be classified as T4. Definition, T2. Genus, T3. Properties and T1. Accident and T3 Species as illustrated in Figure VI.4 below.

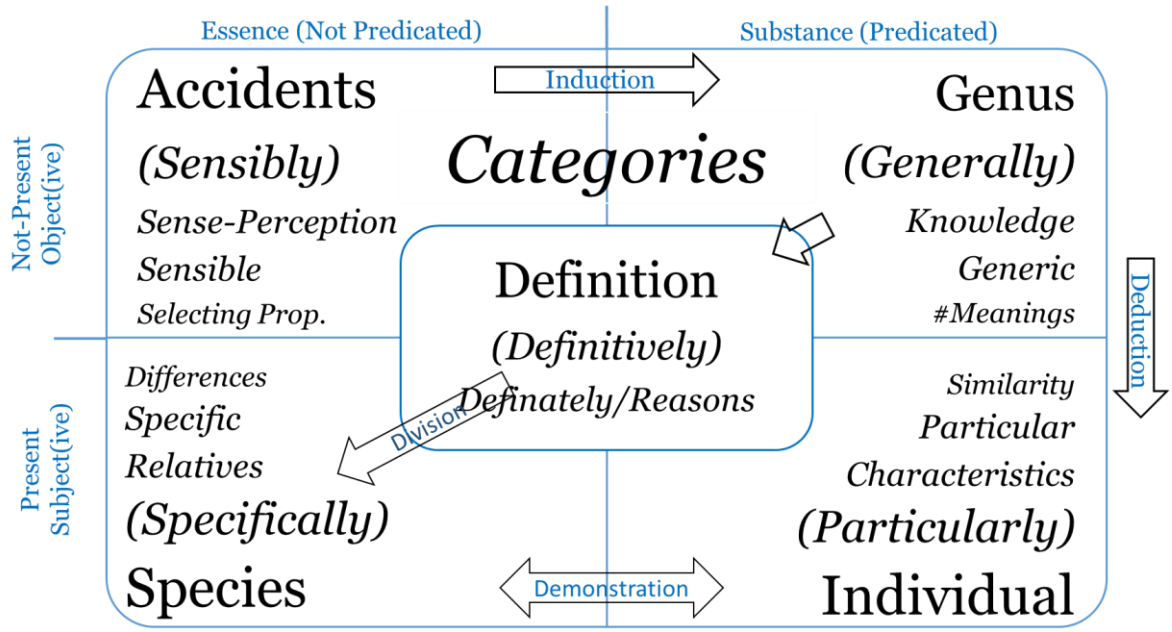

Figure VI.4 Categories of Reasoning (From Aristotle's Categories and Topics)

Following is an excerpt from the Categories and a brief summary to illustrate how each category can be applied in order to form a definition. Fundamentally, all definitions have as their subject either the *individual* or the *species* (Cat, 3a35-40)[cxiii].

1st *Category:* The Primary *substance* is not predicable of anything and not present in anything. I.e. it is ascribed accidentally.

2nd *Category*: The *genus* is a *kategoria* of both the *species* and the *individual* and is predicated of a thing but not present in a thing e.g. man is predicated of Socrates but not present in him.

---

[66] *Locus* (Τὀπος) is a place in which many arguments pertinent to one and the same dialectical purpose, may be found-*sedes argunumtorum*. In each *locus,* the arguments contained therein look at the thesis from the same point of view; and the *locus* implies nothing distinct from the arguments, except this manner of view common to them all." (Grote, 1872:408-409)

3rd *Category*: The *species* is a *category* of the individual and is a relative term. Species is present in a subject but not predicated of the subject but predicated of something else i.e. the object i.e. knowledge is a knowledge of something.

4th *Category:* The *individual* is a *category* of similarities i.e. it is both predicated of and present in a subject

5th *Category:* The *differences* are predicated of the species and of the individuals and together forms the definition of the subject.

As an outcome of this categorisation, the resultant definition of the species and that of the individuals are applicable to the primary substance, and that of the genus is predicable of the species. As Grote (1872:409)[cxiv] explains, having a Generic view of a subject (Genus) does not define a new subject, but provides a placeholder (*kategoria*) where all the known, similar properties belonging to the particular subject can be placed. It is these various groupings of propositions that allow for a common definition of a subject and provides a topic on which we can debate or develop a list of further arguments depending on the case in hand (Grote, 1872: 409).

Cycle 3: Topics of Reasoning

The third round of analysis follows a process of Topical Analysis. Topics are seen as common subject matter or 'places in mind' from which one can construct arguments (Tallmon, 1994). For Aristotle, one can argue or defend oneself from a particular perspective or what he calls Loci (τόπος or Topos). Loci[67], is referred to as the preliminary topics (τὰ πρό τών Τόπων) or the topics that come before the general topics (κόινοι Τόποι) (Grote, 1872:408). Arguing on specific Topics depend on whether one is arguing from the position of the philosophers or from the masses. Aristotle distinguishes these arguments (especially those of the Philosophers) to come from a particular point of view or Loci[68]. These points of view are 'common perspectives' from which philosophers can argue; that allow them to have some form of agreement as to the grounds for such arguments[69].

---

[67] That Aristotle is referring to in the second chapter of the Topics

[68] Now a Loci (τόπος) "is a place in which many arguments pertinent to one and the same dialectical purpose, may be *found-sedes argunumtorum*. In each *locus,* the arguments contained therein look at the thesis from the same point of view; and the *locus* implies nothing distinct from the arguments, except this manner of view common to them all." (Grote, 1872:409)

[69] One of the more difficult aspects of Argumentation is exactly these grounds of arguments (Booth, Colomb..p152. Practice has resulted in a morphing of Aristotle's initial concept of Loci (Topos) as being

Much debate has occurred on the subject of Aristotle's special and general Topics (Miller, 1987). According to Leff (1983:62), medieval rhetorical practices appear to have dispensed with Aristotle's concept of general and special topics in favour of a list of formulas of things to say in particular circumstances. The parts of speech with which the minor topics are concerned with, are to be able to demonstrate whether harm or good has been done, to what degree (great or small), and to determine whether justice or injustice had been done (Aristotle, Rhet).

Now it is important to differentiate between i. the place of survey (the Loci or Topic), and ii. the way of looking at something (the lines of argument), and iii. the subject or object that one is looking at. The i. *place of the survey* are the five categories of Accidit, genus, Species, Property and Definition. Metaphorically one can equate it to 'surveying' the landscape in front of one; in this case from the perspective of 'accidit', and then determining which is the best route to follow. Mortensen explains the place one is looking at (Loci) as follows:

> "the loci serve to focus the attention of the orator on specific aspects of a given case and so function as a simple information system that assists the orator in making sense of the facts of a given case." (Mortensen, 2008:38)

The terminology that Aristotle uses for ii. *the way of looking* at something is to 'examine upon the following lines (of arguments)' (Top, 116a1-5). The kinds of lines argument Aristotle refer to are lines of consequence, inflexion, preference, prior choice etc. These 'lines of arguments' are determined according to the dialectical reasoning process as outlined in Chapter V.6 Arguing dialectically. For a summary of the 28 different lines of arguments that Aristotle uses see XII.3.v Lines of argument. Commonly used dialectical lines of argument that have been appropriated by Qualitative Data Analysis (QDA) techniques are similarity, difference, frequency, sequence, correspondence or causation (Hatch, 2002:155).

This process of dialectic reasoning determines both the topic of discussion as well as the subject of concern. Much like a doctor would diagnose a patient (what or topic)

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the kinds of arguments one can make i.e. arguing from differences or similarity etc. that are applicable to all subjects, towards a form of argumentation that is discipline specific. Aristotle recognised this at the time in Rhetoric (Rhet, 1358a20-25) that the closer to the particular that one selects one's definitions, the more distinct the science in question will become.

as having contracted flu due to exposure to another infected person (why or the subject of concern).

Cycle 4: Ethics (moral actions)

In the fourth round of analysis, these key topics or issues are compared against contemporary literature or what Aristotle refers to as endoxa or common beliefs, i.e. in what degree is this a problem, how the current situation compares with contemporary practice, and what should be done about it.

> "The …deliberative orator's aim is utility: deliberation seeks to determine not ends but the means to ends, i.e. what it is most useful to do" (Rhet, 1362a15-20).

This cycle also examines what habits or dispositions are developed in the process. In order to attribute praise or blame in any given circumstance, the means of persuasion for 'utility' according to Aristotle is Epideictic speech (Oravec, 1976:164). In such forms of rhetoric, cases are presented as a form of rhetorical induction, and has an appeal to the speaker or audiences, or agent's character or Ethos. Although Aristotle's epideictic speech refers to generic speech form, the purpose is to *diagnose* from the situation (circumstances) with medical precision the type of acts that occurred, and why it occurred. Once certain propositions can be deemed to be true, one can make further propositions which are true in consequence (Rhet 1356b15-17). For the evaluation of cases, Aristotle shows that one needs to consider both propositions of universal and particular actions, i.e. greater or smaller, justice or injustice, good or harm, honour or disgrace (Rhet, 1359a20-25).

Cycle 5: Rhetorical Persuasion

Rhetoric refers mainly *What* one should say or the 'thought elements' to invent and refute arguments. What one should say is based in the main on the topics of conversation and the circumstances surrounding them. How one should say them is referred to as style. Style (Lexis), structure and clarity are fundamental to Aristotle's art of Rhetoric and Dialectic (*Rhet*. 1403b1).

Style refers to *How* one should say something or saying it in the right way. Aristotle indicates that style can make a significant difference in convincing one's audience, whether it be written or spoken, and provide some guidelines as to how one's

dialogue need to be formulated[70].With style, as in reasoning, there can be a number of fallacies or poor style[71], and reasoning needs to be clear, appropriate, and natural and use simple and understandable words and good metaphors (1404b2-20). For speech to be clear, the author must attempt to provide a plain meaning, Appropriateness refers to the use of language that suits the occasion. Naturalness refers to limiting artificial words. Strange words refer to minimal use of compound or invented words. Good metaphors refer to the use of appropriate examples that correspond to the situation. These aspects of style are also used by Habermas (1984) to support claims for the legitimacy of speech acts.

For structure or arrangement of speech, Aristotle outlines a number of important aspects[72]. Of primary importance, is arranging the reasoning in a natural order or sequence (Rhet, 1407a18-20). Other aspects he refers to are the proper use of connecting words, the use of gender, calling things by their names, avoiding ambiguity, proper use of gender, and appropriate plurality and punctuation (Rhet, 1407a18-1407b15).

Aristotle also indicates several techniques that can give clarity to convincing one's hearers (Rhet, 1407b26-1408a30). These can be grouped under Impressiveness, Appropriateness, Correspondence, Aptness and Genuineness[73]. One should not make one's speech impressive through such errors as describing rather than naming, representing concepts with the aid of metaphors, or incorrectly attributing characteristics to an object. Appropriateness refers to when one's speech corresponds appropriately in terms of emotions and characters with the subject. Correspondence means to converse with a suitable level of gravity with deference to the subject. Aptness refers to how people perceive the facts that you represent. Genuineness expresses how truthfully one represents one's story.

Cycle 6: Political Judgement

The parts of speech that judgement and evaluation is concerned with, is Political or deliberative speech. The purpose of such deliberation is to propose or discourage a specific course of action (Rhet, 1358b1-35). For Aristotle, the most important question

[70] See Appendix XII.3.vi Rhetorical Style/Lexis
[71] See Appendix XII.3.vii Stylistic fallacies
[72] See Appendix.XII.3.viii Terminology and arrangement
[73] See Appendix XII.3.ix Appropriateness

or element one can ask about a particular case, is the reason for something to have occurred, or in terms of his elements, the 'Why' (EN, 1111a5). This is an inquiry as to "Why" something happened i.e. its cause and effect.

> "Knowledge is the object of our inquiry, and men do not think they know a thing till they have grasped the 'Why' of it (which is to grasp the primary cause)" (Phy II.3, 194b17).

For Aristotle, the end is analogous to the aim. In order to determine 'Why', or the outcome of the actions that occurred, one needs to look at the specific points of stasis, conflict, or success, in order to apportion praise or blame. The purpose is to understand the case both from within and without, and focusses both on the structural question of "Why?" things are as they are, and the dynamic question of "How?" it works (Flyvberg, 2001).

> "Again 'that for the sake of which', or the end, belongs to the same department of knowledge as the means. But the nature is the end or 'that for the sake of which'…This art is distinguished between that which uses the product, and that which directs the production of it" (Phy II.1, 192b14..194a26)

The way that Aristotle intends this section to be used is not clear from the text, however one can infer from the way it is represented, that the scenario is one of a judge, determining which course of action determined the outcome, or which attribute is better in the case where one is presented or where there may be disagreement. Another way to apply the rules is in 'decision making' i.e. in order to determine which of two possible choices is the better one. This process is outlined in greater detail in Chapter V.6.iii Reasons and choices.

VI.5.v Application of analysis procedure

The way that I understand Aristotle's process of dialectical reasoning, is that arguments occurs when two (or more people) disagree on something[74]. This Aristotle refers to as the topic (topos) or problem. Now a problem is dialectical as it is essentially a contradiction either between two philosophers, between a philosopher's view and the masses or between the masses themselves (although this argument would be highly

[74] There would be no reasoning required if we agreed on a matter.

untenable for Aristotle as the masses do not have a sound reasoning basis for disagreeing with each other).

For Aristotle, these arguments need to first start with the 'opinion's' that are extant on the topic. This is referred to as the existing doxa or 'common beliefs. At this point the system of reasoning becomes essentially definitional i.e. the establishment and defence of definitions. This is done by examining the 'Topics' of reasoning, which Aristotle establishes as the Accidents, the Genus, Species and properties of a subject or topic. A definition thus becomes a 'synthesis' of these topics of reasoning into a definition that can be used to defend or refute alternative definitions or opinions. The process of defence or proof belongs to a process of dialectical reasoning as to 'why' the case (object, subject) in point is a particular 'kind' of case firstly, and secondly if the particular attributes that it should exhibit are in fact present or not. For Aristotle, establishing a resolution to a problem is a process of establishing the 'reasoned' fact or '*Why'* it is so, which in essence is definitional by nature. The 'reason' why answers the question as to the causes *why* something exists… answering the question referred to as 'because'[75] why.

VI.6 Data Analysis

The following section provides a detailed application of the data analysis procedure. This comprises the data selection and preparation procedures, as well as the application of the analysis procedures as outlined in the previous section. The outcome of this analysis is the development of the theoretical model that informed the further discussion in the findings.

VI.6.i Collating the data

The data were coded in Nvivo 11 based on the sources and grouped according to the four cases of Year 1 group (C3), Year 2 group (C2) and year 2 individual (C1) and year 3 group (C4).

1. Instrumentation

Documents and recordings such as assignments, course reflections, minutes and project reports provided the required artifacts for further analysis (Halverson, 2004). Student end-of-course reflections comprised the bulk of the source documents for

[75] Because is comprised of the two terms 'be' and 'cause'…in essence the 'cause of being' or why it exists.

analysis. The cover pages and TOC's were removed from the documents, and the student's initials, together with the case numbers were used to index the documents. These documents were loaded into NVivo 11 for analysis. I was also a participant on a number of the WhatsApp groups with the students, especially the management groups. I did not use these WhatsApp conversations in my analysis for ethical reasons, even though some students gave me permission to do so at the time. As part of a separate study in the use of WhatsApp in the classroom, I, together with an honour's student analysed a selection of these WhatsApp conversations for which we got permission. This study was published in a separate conference proceeding.

2. Searching procedure

I searched each case for relevant keywords such as when, where, how, etc. Nvivo allows one to include exact matches, stemmed words, synonyms, specializations and generalizations. In order to keep the initial search as narrow as possible, I only used exact matches. Using NVivo's search function is a quick way to extract relevant sections of the documents. The disadvantage is that these extracts need to be read again in order to limit the scope of the extracts as well as remove irrelevant sections or move them to a more appropriate node. This search resulted in key extracts from the documents on the particular element that I queried.

3. Data Cleaning

Once I had included a broad search of the concepts, I read all the extracts and excluded the irrelevant material or moved the extracts to appropriate sections. Although this is time-consuming, it allows for a quicker path to get to the core elements than by close-reading and coding each paragraph.

4. Data Visualisation

In practice, it is complex to illustrate this process of arranging the quotes according to a central term, but the visualisation feature of NVivo assists in visualising this sequence. NVivo has a feature that allows visualising a term in the context of the words that precede it and follow on from it. For example, the term 'plan' in the context of 'How' was visualised as follows:

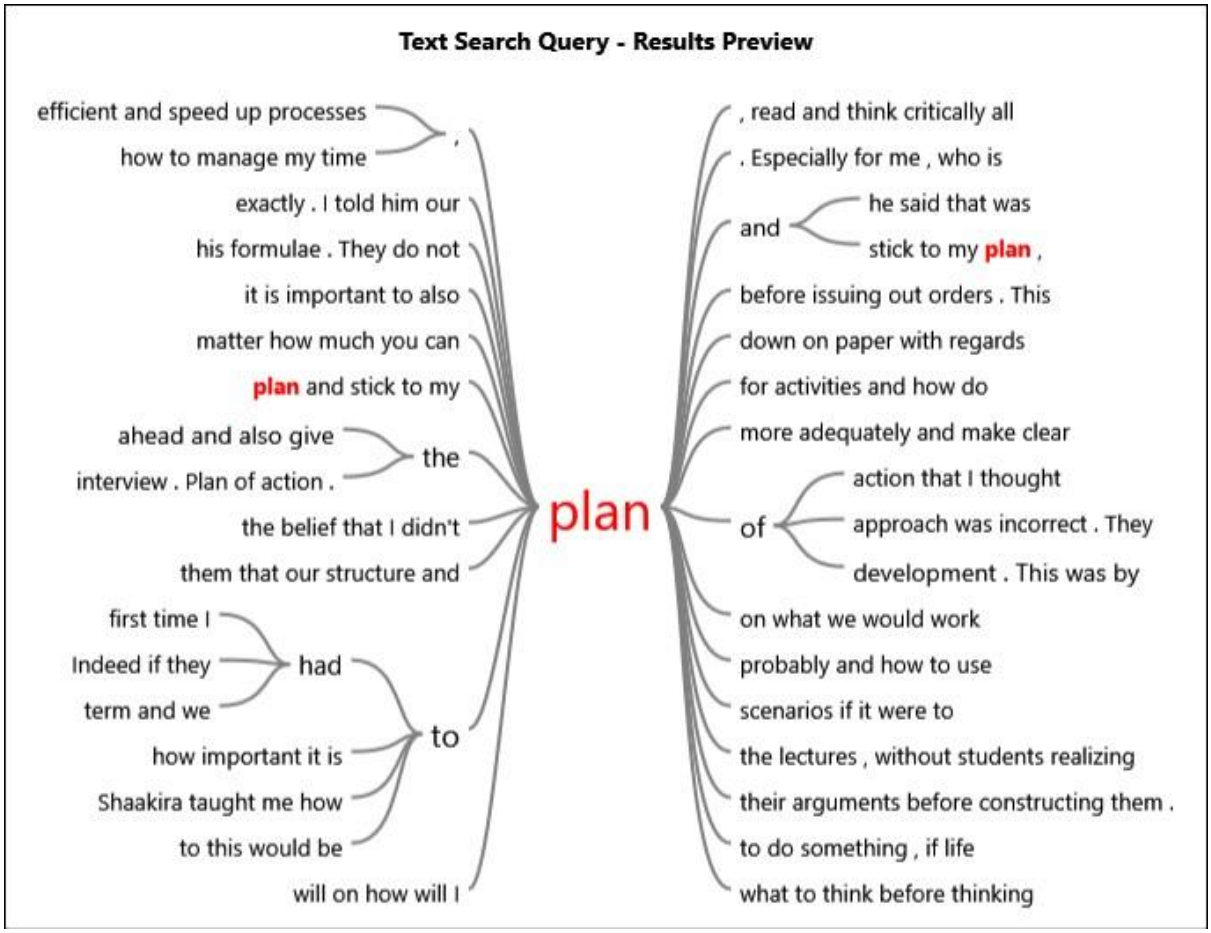

Figure VI.5 'How' I/they/we 'plan

This visual representation allows for easier identification of what precedes and follows 'plan'. For example, the term 'to' is used as {'how to plan' or 'how will I plan', 'had to plan'}. The nouns {I, we, and they} precede planning. The adverbs {'didn't', 'did not', 'do not'} etc. indicate the negative of planning. Plan of {action, approach, development} indicates the type of planning that occurred. The object of planning is {time, scenarios, tasks, work, activities, lectures, arguments}. This can be grouped in order of the most frequently occurring term that precedes and follows 'plan, i.e. in this case it forms the sequence 'to plan on'. This visualisation allows for the further coding of the terms along the central concept of 'How'.

VI.6.ii Initial coding

Analysing the corpus of data to the method of analysis that I had developed required 6 cycles of analysis as per the analysis procedure. These are represented in the following section, where I outline the preliminary coding that I did in each cycle in order to illustrate the application of this method of analysis.

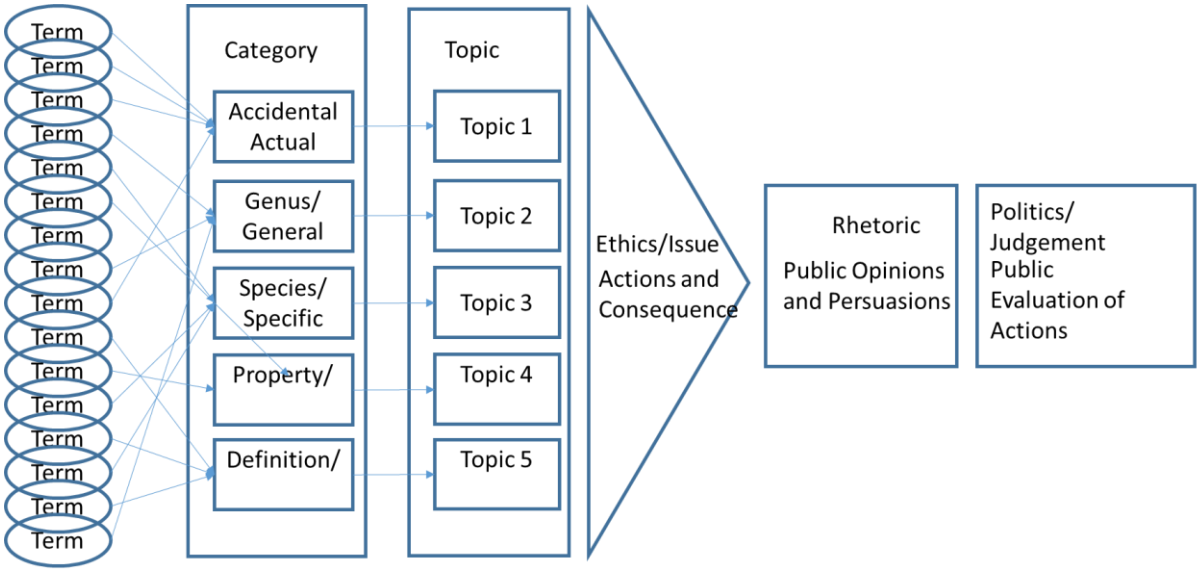

Figure VI.6 Coding Procedure

The interpretation of the results is represented in the next chapter!

Cycle 1: Historical Action: 'How'

My research questions explore 'How' I learned to teach and 'How' students learned. The focus of the research was thus to analyse the term 'How' in the context of the broader elements of circumstance. How answers the question *"in what manner or way"* an action is done or performed (How M-W, 2017). Etymologically it is derived from the Greek word 'pos' (πῶς in Gr.) which refers to 'that' (ὁτι in Gr. or 'uti' in L.). 'How' is also translated into Latin as 'quam' which means 'how much' and forms the root of 'quantum'. Aristotle's usage of 'how' was intended to indicate 'how something is done' or 'how an act is performed' e.g. 'gently or vigorously' or 'the manner in which it is done' (EN, 1111a15-21 in Sloan, 2010).

Active Teaching and learning form a process; therefore, methods of analysis should examine the process. Processes are established as a (causal) sequence of events, i.e. one thing leads to another and to the next. According to Aristotle (Aristotle, n.d.), a line of inquiry cannot originate as a question, as this will lead to an infinite sequence of questions…one question following upon another. For Aristotle, this line of inquiry ceases when the first cause is found. In order of appearance, however, it will be the last in a sequence of answers to 'Why'.

> "For the person who deliberates seems to investigate and analyse in the way described as though he were analysing a geometrical construction (not all investigation appears to be deliberation for instance mathematical

> investigations but all deliberation is investigation), and what is last in the order of analysis seems to be first in the order of becoming. And if we come on an impossibility, we give up the search" (Aristotle, n.d.).

The start of such a line of questioning thus starts prior to the question…i.e. the need for a question, the reason for such a question or the first cause. This may be a need to understand, change or explain a particular set of circumstances, thoughts or feelings…. but nonetheless something before the question. For Aristotle we do not deliberate about the end, because it is as it is. Neither do we deliberate about the facts as these are matters of perception (EN, 113a1-2). "We deliberate not about ends but about means (EN, 112b12). We deliberate about the path between these two, i.e. where did everything start and How did it come to this? Means are determined by 'How' we arrive at the end.

> "They assume the end and consider ***how*** and ***by what means*** it is to be attained" (Aristotle, EN 112b15)

Because 'How' refers to a process, it is therefore important to not only define the categories that belong to How, but also relate them to each other in terms of a process or sequence of causal steps. This dissertation explores the question *'How'* in terms of my teaching…i.e. "how I taught'. In between the need for the question in the first place and the answer are some other questions that I raised along the way which explain *'by what means'*.

Cycle 2: Categories analysis

Based on the first cycle of coding 'How', there are a number of related terms that belong to the concept. These were determined by examining the subject that belongs to it. Once these terms were coded, their subject or topic were determined by inspection. The framework was derived by first (auto) coding all the paragraphs that contained the term 'How'. This resulted in 887 unique references. These were then extracted into an excel spreadsheet and an Excel macro was written to extract each sentence containing the word 'How' as well as splitting these sentences into individual words, arranged around the central element of 'How'. The large number of occurrences makes them difficult to visualise. End-to-end, 'How' comprises more than 30 pages in terms of an NVivo word tree. Following is a word-tree on 'How' for just one of the students (C4_MH).

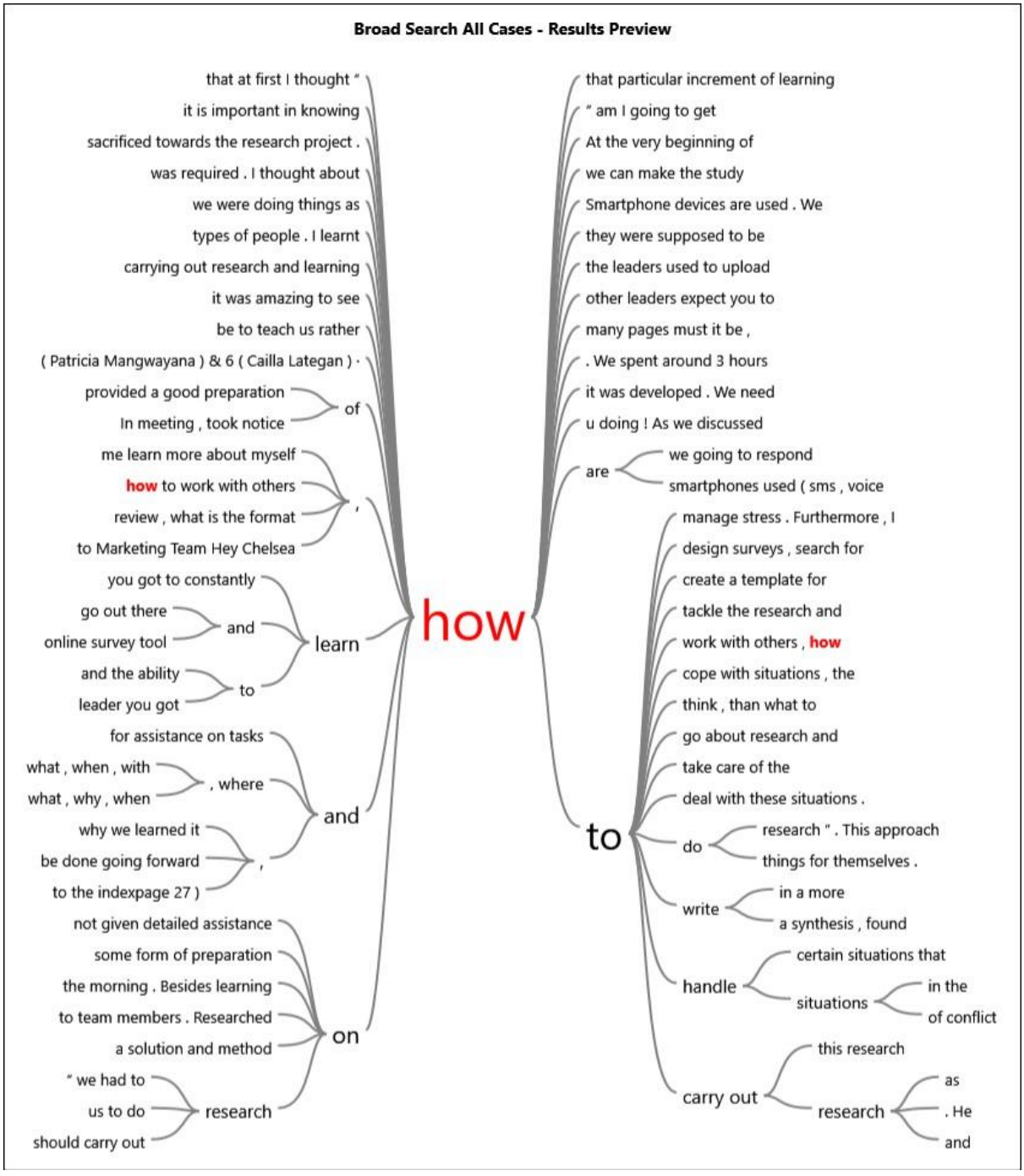

Figure VI.7 Word-tree for 'How' from one student (C4_MH)

From this list, the subject of each *how* was determined. This left me with 201 items belonging to *how*. These items were then grouped in similar terms around the five causes. These were then sorted according to the subject and grouped into the 4

categories (Q1:Accident (44), Q2:Genus (37), Q3:Species (46), Q4:Property (33) and Q5:Definition (38) in which it fitted the best (see Table VI.8 below)[76].

Table VI.8 Grouping of terms belonging to 'How' into Categories

Name	Category	Generic.Term	Species	Description	Src	f	Val
1.Generic	0	Generic	Generic	TODO: Divide into species	65	2746	Generic (2746)
I.How.how	I	How.how	how	how	62	672	how (672)
I.How.Kind	I	How.Kind	Kind	kind	23	46	Kind (46)
I.How.perspective	I	How.perspective	perspective	perspective OR perspectives OF	62	428	perspective (428)
I.How.Type	I	How.Type	Type	type	27	47	Type (47)
I.How.View	I	How.View	View	view			
I.How.See	I	How.See	See	see OR sees			
I.How.discover	I	How.discover	discover	discovered OR discover	24	41	discover (41)
II.How.approach	II	How.approach	approach	approach OR approaches	52	164	approach (164)
II.How.arrange	II	How.arrange	arrange	arrange OR arranged	6	6	arrange (6)
II.How.organise	II	How.organise	organise	organise OR organised	12	24	organise (24)
II.How.plan	II	How.plan	plan	plan OR plans OR planning OR p	51	177	plan (177)
II.How.strategy	II	How.strategy	strategy	strategy OR strategies	17	26	strategy (26)
III.How.method	III	How.method	method	method OR methods	45	174	method (174)
III.How.process	III	How.process	process	process OR processes	54	238	process (238)
III.How.technique	III	How.technique	technique	technique OR techniques	18	31	technique (31)
III.How.way	III	How.way	way	way	59	321	way (321)
V.How.deal	V	How.deal	deal	deal OR dealing OR dealt (Syn: I	36	73	deal (73)
V.How.style	V	How.style	style	style OR styles	18	37	style (37)

Src. (in the table) indicates the frequencies reported of the term in the context of 'How'. The frequency of the term overall in the corpus of data is indicated by (f). i.e. Perspectives (62/428) would be that 62 sentences that contain the term 'perspective' also contained the term 'How' out of a total number of occurrences of 428 of the term in the corpus of data. In the final analysis, the terms were not ranked according to frequency, but according to the place that they occupy in the sequence and in terms of their precedence and consequence, i.e. one term can have many consequences, but maybe only one that will lead to the next term as outlined in the next cycle (Cycle 3). In this way the key terms that belong to the five quadrants in each category were identified. This provided a complete list as illustrated in Table VI.9. Please note that this table has been limited to the top 30 terms in each Category due to space limitations.

[76] The number in brackets indicated the number of terms that were grouped according to each Q.

Table VI.9 Key terms belonging to Categories of 'How'

How															
Knowledge (Nous)															
	I			II			III			IV			V		
	Accidental			General			Specific			Particular			Universal		
#	Perspective	ƒ	#	Format	ƒ	#	Plans	ƒ	#	Experiences	ƒ	#	Knowledge	ƒ
01	percieve	18	01	01.idea	7	01	Expectations	246	01	Course Outline (plan)	127	01	Disorder	24
02	observe	9	02	02.format	29	02	Approach	159	02	Teaching.Approach	87	02	Approach	159
03	see	55	03	04.organise	11	03	Structure	45	03	Learning approach	0	03	Direction	67
04	think	138	04	idea	66	04	Process	70	04	Classes	57	04	Stage	57
05	Perspective	140	05	approach	58	05	Plans	34	05	Experiences (actual)	13	05	Way	317
06	look	84	06	framework	33	06	Method	61	06	Research	1151	07	choice	31
07	feel	84	07	belief	22	07	06.methodology	19	07	Reflection	451	08	knowledge	94
08	something	78	08	direction	19	08	07.steps/stages	16	08	Module	159	09	grade	1
09	focus	46	09	goal	19	09	08.outline/framework	21	09	used	183	10	mark	6
10	views	27	10	aim	16	10	06.design	29	10	make	65	11	measure	2
11	guide	27	11	type	16	11	10.curriculum	3	11	tests	34	12	yardstick	0
12	hear	25	12	figure	14	12	deal	37	12	mark	31	13	benchmark	2
13	sense	24	13	discover	13	13	prepare	33	13	plagiarism	31	14	compare	12
14	view	23	14	policy	11	14	system	15	14	Support	25	15	Examine	11
15	find out	20	15	model	10	15	track	11	15	manner	13	16	deliberate	3
16	aware	18	16	policy	7	16	stage	10	16	select	7	17	decision	57
17	keep	18	17	shape	7	17	technique	9	17	consultation	6	18	choice	31
18	Attention	12	18	wish	5	18	R.layout	6	18	measure	5	19	reason	37
19	opinion	12	19	ideal	4	19	strategy	6	19	practice	5	20	confidence	18
20	note	12	20	dream	3	20	line	4	20	deliberate	3	21	realise	31
21	ignorance	7	21	intention	3	21	move	4	21	brainstorming	2	22	enlighten	2
22	identify	7	22	objective	3	22	program	4	22	grade	1	23	find me	1
23	informative	6	23	10.target	2	23	objective	3	23			24	self	111
24	voice	6	24	base	1	24	X.path	3	24			25	life	100
25	center	5	25	disorganised	1	25	contrast	2	25			26	knowhow	48
26	eye	5	26	ambition	0	26	directionless	1	26			27	conduct	52
27	concentration	4	27	aspiration	0	27	scheme	1	27			28	behaviour	8
28	narrow	4	28	intrigue	0	28	X.route	1	28			29	not	277
29	observe	4	29	arrangement	4	29	blueprint	0	29			30	all	197

Once these terms were identified, they were ranked and grouped according to the process as outlined in Cycle 2.

Cycle 3: Determining the topics

The 2nd cycle of coding determined the 5 perspectives i.e. perceptions, observation, attention, thinking. In the process it generated a long list of terms that belong to the category. In this list there is no order or sequence of the terms that are grouped in the category. They are merely grouped based on similarity/differences with the other terms, based on the principles of dialectics. This process can be illustrated by means of an example. In the Category of Species (Specific), the following terms were coded as belonging to it namely expectations (246), approach (159), structure (45), process (70), plans (34), method (61), methodology (19), steps/stages (16), outline (21), design (29), curriculum (3), deal (37), prepare (33) and so on for all the other terms that are indicated in Table VI.11 Key terms belonging to 'How'.

Once the terms that belong to the broader category has been established, they are grouped and arranged according to a sequence. It is important to establish the sequence of these terms as it establishes some form of order or causality i.e. a consequence. The sequence would take one from the first conceptualisation of a 'plan' i.e. what one expects, to the final outcome of a 'plan', which in education would be a course or curriculum, together with all the terms in between as follows[77]:

> Expectations(246)>approach(159)>structure(45)>process(70)>procedure(17)>plans(34)>method(61)>outline(21)>layout(6)>structure(264)>framework(21)>methodology(19)>schedule(36)>course(533)>module(382)>program(15)>curriculum(3).

The terms that belonged to planning that were not used in the sequence are theories (185), scheme(4), strategy(6), tactics(2), contrast(2), system(58), technique(31), move(26), and organise(25)[78]. In the analysis, a few terms belong more appropriately in the prior category of form, namely outline, layout, plan, structure and framework. These are related to form as well as planning because they all refer to some form or conceptualisation of the course or curriculum. Forked terms, i.e. terms that

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[77] A sequence is one of the lines of argument that is used by Aristotle to establish causality.
[78] The reason why they were not used in the final sub-categorising of planning is that they did not 'fit' well with the other terms, and may possibly belong to one of the other major dimension of 'How' or to one of the other elements and merely appeared in the coding as a result of its proximity to 'How'.

were indicated by any of the existing terms that are part of the sequence are but were not coded or considered in the analysis. The reason why some of the terms are forked, is that the coding had indicated these as the significant precedence or consequence, but that the particular term was not identified in the context of the element 'How'.

Note that at this point during the process, a representative term (topic) for this category has not yet been established. This is determined once the terms in the category have been grouped and ordered. Eventually the term **'planning'** was selected as the Topic that suitably represents this Category. The reason for this selection is that the term was determined inductively to best represent all the other terms that were used in this category based on its use in practice. Once one has determined the topic of discussion, one can review existing theories or propositions on the matter. From this one can determine how the inductively derived topic compares to the current perspectives on the matter.

Cycle 4: Determining the issue (Ethics)

In the next cycle of coding, the list of terms are then further grouped into sub-categories. I continue to use 'planning' as an example, however the same process is applicable to the other categories. I performed this step by taking the top five terms in the Category of 'planning' and arranged them together to the terms that were closest to them in meaning (similarity), and then ordering them according to the sequence that made sense in context. The process is outlined in Aristotle's dialectics in terms of determining the lines of Arguments (moral actions). Aristotle refers to lines of consequence, inflexion, preference, prior choice etc. See Appendix XII.3.v Lines of argument. For example, the conjunction of 'how' and 'plan' can be arranged to form a sequence. To aid in this process of arranging the terms, I graphed the frequency of the terms that belong to the major category II of Species of 'Planning'.

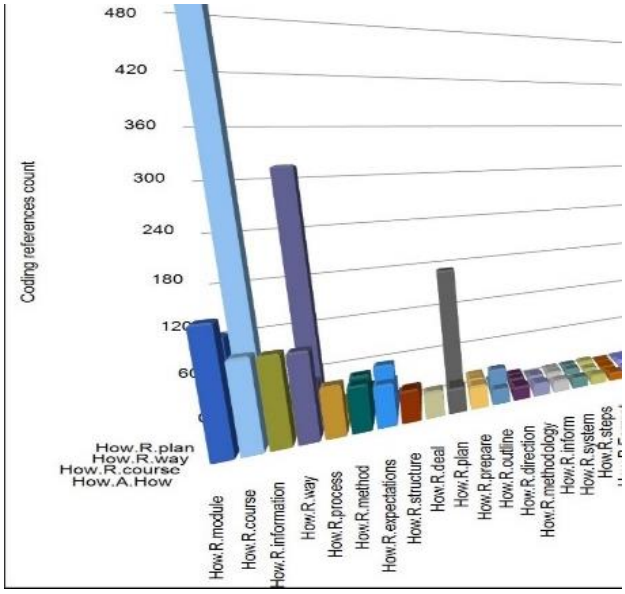

Figure VI.8 'How' we plan

Next, I examined each sentence (quotation) that included the term planning and determined the term that precedes 'plan' and the one that follows it. This process can be illustrated through using another word tree example (Also only one student's namely C4_MH).

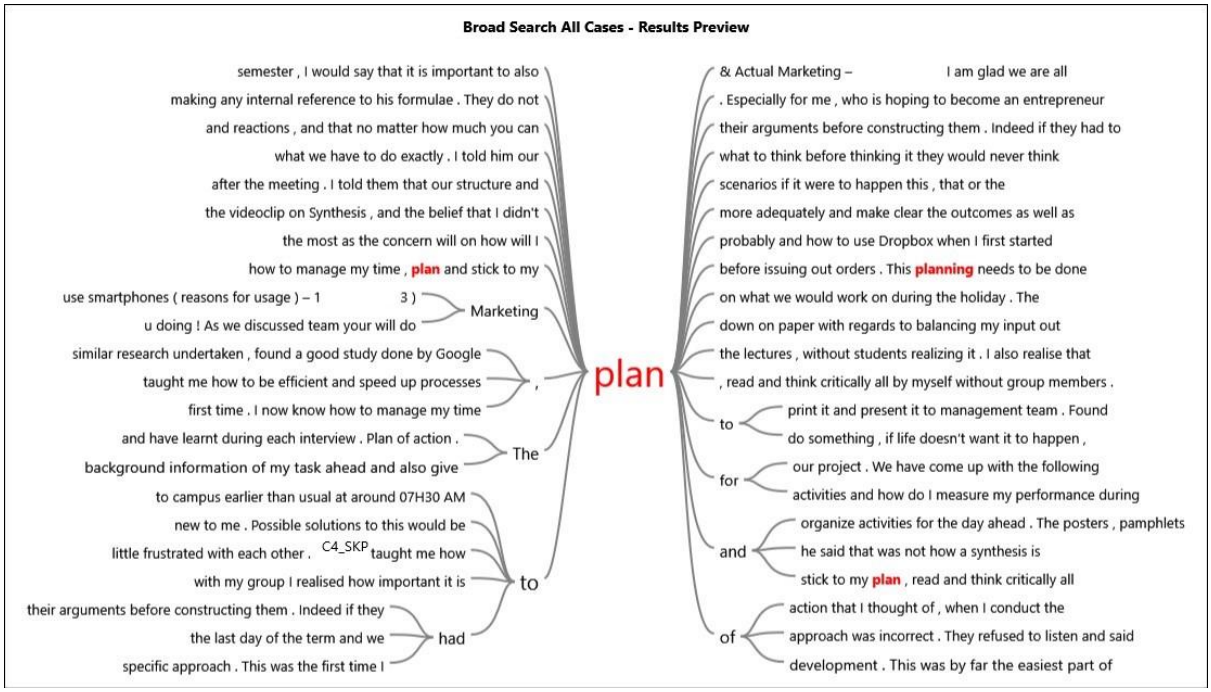

Figure VI.9 Plan in the context of 'How' (C4_MH)

This analysis provided me with the following sequence of 'How we plan'.

Table VI.10 Sequence of terms belonging to Planning

Sequence	Precedence	*Term*	Consequence
1	direction	*expectation*	Outline
2	setting out	*process*	tasks/assignments
3	Beliefs	*procedure*	Experiences
4	Way	*methods*	Knowledge
5	expectation	*Outline (rel format)*	Structure
6	challenge	*layout (related to format|structure)*	Clarity
7	approach	*Plan (rel format)*	Structure
8	expectations	*Structure (rel format)*	Lessons
9	model	*Framework (rel format)*	Design
10	plan	*methodology*	experience
11	plan	*schedule*	Tasks
12	expectation	*course*	experience
13	Way	*module*	experience
14	module	*curriculum*	opportunities/life

This sequence allowed me to establish the particular terms (or synonymous terms) that come before (precedence) and after the term in question (consequence). i.e. for 'plan' the sequence that was established is:

This larger sequence can be abstracted by combining similar terms such as 'scenario' and 'approach' in order to form a basic sequence of:

From this sequence, one can infer that planning is situated between approach and objectives, i.e. it comes from approach and leads to tasks and objectives. This sequence also allows one to forms part of the definition in vivo. In this case, a plan can be defined as *"an approach to structuring (tasks) in order to meet one's objectives"*. This definition of 'planning' represents what the students believe planning to mean. Once this definition is established, it is possible to inductively determine the general topic of discussion i.e. the structuring of tasks or the meeting of objectives.

It is also then possible to compare this definition that was derived in-vivo (from the masses), with the 'formal' definition. I.e. according to the Merriam-Webster dictionary (Plan M-W, 2017), a **plan** refers to:

1. "a method worked out in advance for achieving some objective"
2. "something that one hopes or intends to accomplish"

Synonyms for **plan** are "arrangement, blueprint, design, game, game plan, ground plan, master plan, program, project, road map, scheme, strategy, system, aim, ambition, aspiration, bourne (also bourn), design, dream, end, goal, idea, ideal, intent, intention, mark, meaning, object, objective, point, pretension, purpose, target, thing". Near antonyms for **plan** are "means, method, way" (Plan M-W, 2017).

From this process, one can now compare the definition of **plan** based on the group's perspective, with that of the general definition, which in this case agrees mostly with option 1. "a method worked out in advance for achieving some objective" according to the Merriam-Webster (Plan M-W, 2017).

The definitions that were derived from the terms were based on the (actual) words that the students used. These definitions were thus in-vivo and were not actually made by the students. Therefore, meaning is inferred from the definitions that are used in the way that words or groups of words are arranged in order to define the terms, which is the definition of a definition per-se (Definition M-W, 2017).:

1:a : "a statement of the meaning of a word or word group or a sign or symbol"

1:b : "a statement expressing the essential nature of something"

1:c : "a product of defining"

2 : "the action or process of stating the meaning of a word or word group:

3:a: "the action or the power of describing, explaining, or making definite and clear"

Once these in-vivo definitions were determined, they could be compared with public definitions, synonyms and antonyms of the term. Because the existing definition leads to a certain set of options or choices, a different definition (if established that there is a difference) may lead to an alternative set of options of propositions. This allows one to examine the process of planning in general, or the process of planning in particular, i.e. how I planned the curriculum, or 'how' students

planned their work. This allows a further round of comparison against general perceptions of how curriculum planning should proceed.

Cycle 5: Rhetoric

Likewise, with rhetoric, the analysis is presented in context in each section in the following chapter.

Cycle 6: Politics

For this cycle, I repeated the process of grouping the underlying terms into the respective categories, referred to here as sub-categories. I arranged the index cards that I had made for each term, according to five sub-categories of planning and used this exercise in order to arrange the terms according to some meaningful structure.

Figure VI.10 Arranging index cards according to categories

This arrangement allowed me to derive the following high-level model for 'How we plan.

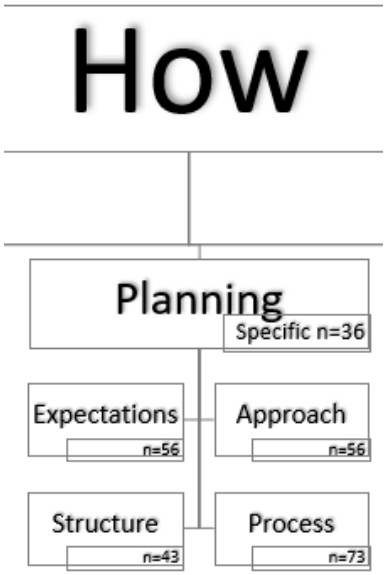

Figure VI.11 How we Plan

The Politics cycle allow for the discussion/analysis of the topic in the broader scheme of education. Once the 'topic' of conversation (planning of the curriculum in this case) has been determined and the 'definition' has been established, it allows one to examine the general process of **planning** based on how I or the students structured the course, curriculum, tasks or achieved our objectives. This is represented in greater detail in the dissertation under each relevant section.

VI.6.iii Elements for 'How'

This process was done similarly for the other four categories. This left me with the overall categories and topics for 'How' as indicated in Figure VI.12 below.

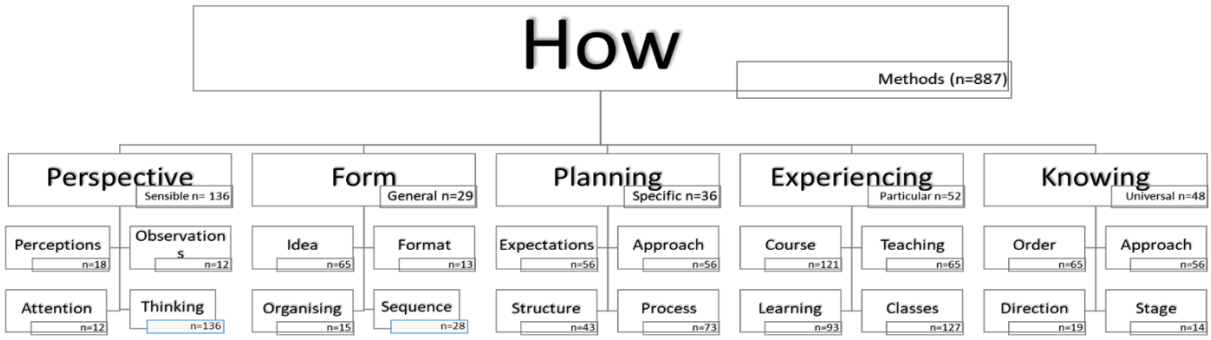

Figure VI.12 Framework for 'How' derived from empirical observations

This allowed me both with a theoretical basis for representing the analysis of the case, as well as a procedure for each Category.

VI.6.iv Representing the other elements

Even though the emphasis for the analysis was the term 'How', a similar process was followed in order to analyse the other elements of circumstances. I had coded all the elements up to the third cycle, but do not have sufficient time to analyse the rest of the elements to the other cycles, nor the space to represent them all in this dissertation, nor is it necessary, as my thesis questions are directed at the element 'How'. I wish however to present the provisional model as it currently stands in Figure VI.13 Coded Categories and Topics of the Elements of Circumstances. The reason for this is to present what these elements mean in the context of my teaching practices, together with a rough definition/description for each of these elements and categories from my notes. This may assist other researchers in applying these elements in education. The following table reviews these Topics and their Categories in greater detail. The number in brackets refer to the number of times (frequency) that the term occurred in the corpus of data.

Table VI.11 Elements of circumstances that were derived from this research

Element	Topic	Description
When (742)	**Timing (12)**	**Evaluation of times…too early, late, too long,**
	Change(42)	Time as a substance/ perceptions of change
	Time (434)	Nature of time as a quantity, frequency, length, pace, tempo)
	Times (85)	Specific times (hours, minutes, seconds/days months years etc.)
	Timetables (2)	Particular times as indicated on calendars, clocks etc.
Where (470)	**Environment (77)**	**Educational, classroom, learning, working, home, business or virtual environments**
	Venues (88)	Teaching, meeting, exam, study, social, online, public, or residential venues.
	Rooms (67)	Specific rooms i.e. classrooms, lecture rooms, meeting rooms, bedrooms etc.
	Spaces (39)	Location, space, area, boundary, address, position
	Location (23)	Where (in general) and place (in particular)
What (1207)	**Habits (6) Character (12)**	**Our actions and our habits that make us who we are. What we become!**
	Beliefs (115)	Who we believe we (I am, we are, they) are
	Needs (387)	Our needs, wants, likes and dislikes, emotions/feelings
	Abilities (81)	What we are able to do, choose, level of difficulty, achieve
	Actions (57)	What we do (did/said/thought/learned/experienced/wrote)
How (887)	**Knowledge (278)**	**How we know what we know.**
	Perceptions (49)	How we perceive, observe, pay attention to, look at and opine
	Form (121)	The form or format that something has, an idea or thought.
	Plans (112)	How we structure and organise repetitive events

	Experience (345)	Our particular experiences in life.
Who (433)	**Identity (8)**	**Persons and who they are.**
	Being (436)	Anyone, someone, no-one, everyone
	Human (23)	Individual, self, yourself, being human
	Relationships (17)	Roles, relationships, standing, grouping, society
	Roles (19)	Particular roles e.g. work, family, in groups etc.
With (1044)	**Expertise (8) and Resources (81)**	**Resources (tools, friends and expertise) that we use to accomplish things with (means to an end)**
	About (984)	Object, subject, thoughts and feelings
	Wish (16)	Our interests, wishes, desires, dreams
	Support (84)	The aid and support that we get from friends and others
	Tools (83)	Tools and resources such as funds that we need to accomplish things.
Which (811)	**Topics (118)**	**The choices and goals that we wish to achieve.**
	Understanding (259)	Our thought processes as outlined in How
	Information (557)	Concepts, theories, frameworks, methods that we use
	Curriculum (16)	Courses, cohorts, classes
	Subjects (77)	Subjects, areas of specialisation, generalisations
Why (224)	**Reason/s (176)**	**What we deliberate or reflect on in order to find answers in life.**
	Reality (31)	To be or not to be, been, perception/reality
	Life (299)	Our needs, wants, sense of belonging, living
	Reasoning (16)	Our choices in life, what we like/don't like, what we agree/disagree with (our principles), what we value, what we stand for, what we argue or defend.
	Choice (53)	The choices we make in life, our abilities, our backgrounds, our circumstances, our education

As I indicated, these categories and topics as well as their descriptions are preliminarily and are based on the coding that I did according to Cycles 1-3. The numbers in brackets indicate the frequencies of the root terms in the corpus of data. These numbers do not include the sum of the subordinate terms, which needs to be accounted for separately. I selected these terms to best represent the category and the sub-category to which they belong. According to Aristotle's dialectics, I needed to choose the 'best' fit based on the precedent and consequent. The complete provisional model is illustrated below in Figure VI.13. I hope these are useful to someone at some stage.

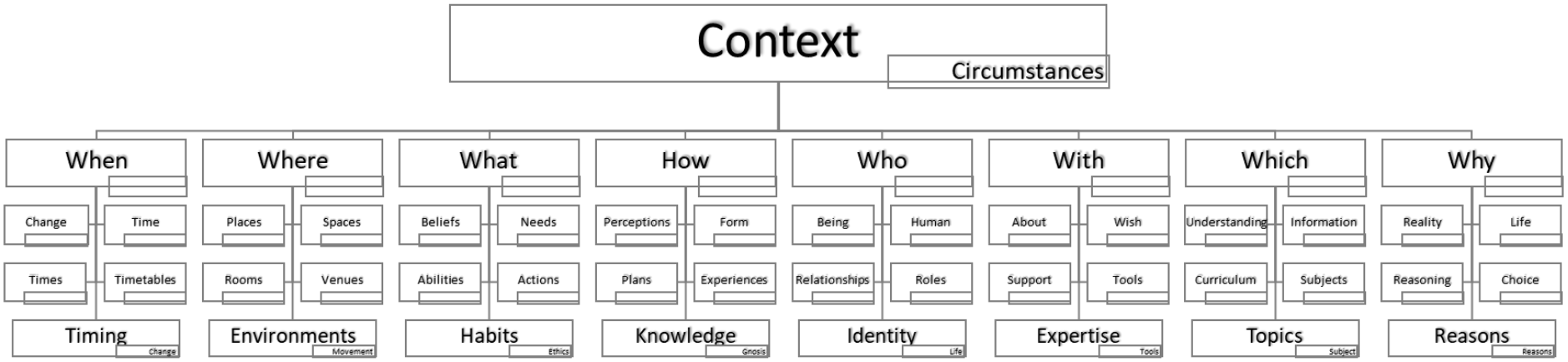

Figure VI.13 Coded Categories and Topics of the Elements of Circumstances

VI.7 Conclusion

A research methodology talks to the heart of any research project. It describes the process that the researcher follows in order to uncover answers to the questions that he set out to discover. As such, the method that one uses needs to be suited to discovering the kinds of phenomena he intends to investigate. Just as there is no point in using a knife to ladle soup, or a spoon to cut a loaf of bread, the research method needs to be appropriate to the subject of investigation. Because I set out to find out about how I should teach my students and how they learn, the choice of methodology falls in the sphere of knowledge and human action. In this case, the action was not merely to discover the practices of teaching, but to actively improve both my own teaching and my students' learning. In this way the knowledge contribution is both practical and theoretical yet extends beyond both to knowledge in action.

This chapter represents a multi-methodological approach to designing my teaching and researching the effect of my teaching (learning) based on the coding and analysis of students' reflections according to the elements of circumstance on 'How'. My teaching interventions were designed according to the four cycles of planning, acting, observing and reflecting as informed by a critical emancipatory action research (CEAR) design. The effect of such interventions (i.e. student learning) was analysed through the coding of student reflections using a method of analysis that is based on Aristotle's rhetoric, dialectics, topics, and categories. This method of analysis forms part of the broader sphere of phronetic social science (PSS) and more specifically a phronesis case study approach. This method of analysis was both informed by PSS as well as contributing to the PSS BOK as a novel method of analysis that is derived from Aristotle's extant works. The methodology is a system of analysis that is aimed at determining the meaning of discourse (rhetoric) in context through a process of definition. This formed the basis of analysing the students' reflections (textual analysis) in order to uncover the meaning behind them. Through the application of the methodology, I have demonstrated in this chapter how to apply it in practice. The following table provides an overview of the key aspects of the research methodology as expressed in this chapter.

Table VI.12 Summary of Research Methodology

Aspect	Description
Ontological Perspective	Sociology of Change (Action)
Epistemological Perspective	Praxis (Action and reflection)
Philosophical Basis	Critical Emancipatory (Praxis and power relations between teacher and student)
Research Design	Critical Emancipatory Action Research (Cycles of Planning, Action, Observation and Reflection)
Research Methodology	Phronetic Social Science
Research Method	Phronetic case study
Method of Analysis	Aristotle's Dialectics, Rhetoric, Ethics, Politics, Categories and Topics
Research Ethics	Scholarly Teaching, Scholarship of Teaching and Learning,
Research Context	Historically Disadvantaged HEI in South Africa. Faculty of Economics and Management Sciences (FEMS)
Unit of Analysis	Studying my own teaching and learning as praxis
Subject taught	Information Systems Research methods and Philosophy Course
Research Population	3 cohorts of 3rd year IS students (230 students)
Research Sample	64 students
Research Instrument	Student end-of-term reflections
Case Data	Analysis of historical data, personal and student reflections.
Data Analysis	Coding of reflections for the terms 'How'.
Research Limitations	Based on historical circumstances that are not-repeatable.

The next chapter represents the first half of the teaching and learning doublet, namely how I designed the course.

Chapter VII How I designed the course

"You learn how to cut down trees by cutting them down" (Bateke proverb).

HOW I designed the course answers the question of how I learned to teach in Higher Education…namely I learned to teach by teaching. This chapter outlines how this occurred.

VII.1 Introduction

In the previous Chapter, I outlined the research methodology that I chose and developed in order to both design my teaching, as well as to research the learning that was taking place. In this chapter, in conjunction with Chapter 7 on "How to teach", I lay the foundation for how I designed the course in Section 2, which aids in a further understanding of my RQ0 of How I learned to teach in Higher Education. In Section 3, I outline the process of planning and structuring the assignments, which became the primary means of teaching students 'How' to do research. In section 4 I document how the research curriculum developed over a period of three years, together with my own development as an educator.

VII.2 Designing the course

Designing the course is the formal part of 'How' we do things in education. It refers to what we wish to achieve in terms of the course. From the students' reflections, 'design' refers to '*how* thoughts or ideas are shaped into a structure'. The closest dictionary definition is "the way in which the elements of something are arranged" (Design in M-W, 2017). Design clearly belongs to the generic concept of 'form' as it has related terms such as "arrangement, composition, form, format or pattern" (Design in M-W, 2017). Design as "something that one hopes or intends to accomplish" has related terms of "aim, aspiration, goal, dream, end, idea, ideal, intent, intention, objective, ***plan***, purpose or target" (Design in M-W, 2017). Not all of these related terms belong to the generic term of design as a 'form' and will be examined elsewhere. From an educational perspective, the course generally refers to the 'academic plan' (Lattuca and

Stark, 2011). Other terms that are used are 'syllabus' referring to the "specifications of the content of a course of study" (Wallace, 2015, syllabus).

Design however does not stand in isolation in pedagogical practice or in its place in terms of the elements of circumstances and of "how'. The term 'design' is preceded by how we see or perceive things as well as how we envisage them to be in the future. Care, however, should be taken that the design process does not become so rational (i.e. PBO) that the life is taken out of the course (Lovat and Smith, 1991; Stenhouse, 1975). In a curriculum of praxis room needs to be left for emergent situations and possibilities, both in the course and the content of educational practices (Grundy, 1987).

VII.2.i Course Outline

The official course guide stated the objectives of the course as follows:

At the end of this module the student should be able to:

- Understand different paradigms within IS.
- perceive and understand how IS as a discipline forms part of a set of interrelated cultural, social, political and other systems.
- understand the origins of the information age.
- understand the philosophical principles of academic writing and publishing in IFS, and be able to apply them.
- Understand the ethical issues raised during eh process of conducting research
- understand the nature and progress of scientific enquiry, and its application to IFS
- Have knowledge of various research methods used in IFS research.
- Be able to find and evaluate information critically for research purposes
- Be able to write a research proposal.
- Be able to interpret and use research output in IFS

Figure VII.1 Course Outcomes (EMS Faculty Undergraduate Calendar, 2013:171)

Although the course objectives are provided at this institution, the design and implementation are left up to the lecturer concerned. In most cases there is not a separate 'teaching manual' for each course. In year one we attended a training workshop on designing our courses. I meticulously set out the course objective, mapped instructional sequences, lesson plans and assignments to meet these objectives in accordance with the PBO approach. By year two I realised that this was a complete waste of time, and that there was no way that one can know in advance what

kinds of students one has and what their capabilities are. By forcing the students to go through the same sequence of events, year-on-year, with very little learning, just so that one could keep to a schedule, did not make sense to me. By year three, I had decided to dispense with the whole course outline in the class. At the end of the course it is easy to put one together for the past semester[79]; however, this will be different the following year as the students are different. I therefore did not provide the students with a course outline in Year 3. The students noticed this lack of a course outline during the course.

> All the other lecturers follow a **course outline**, they have dates set before the semester starts, they have a good idea of when assignments are due and they don't ask the students what to give them next. (C4_LLL)

> Walter does not follow any form of planner or commonly known as **outline**. He teaches as he goes, emphasises that there is no wrong or right and promotes class discussions or debates. (C4_KK)

Of course, not everyone agreed with this approach.

> Compared to other modules, this **course** is very different. It's very free flowing, as there is no **course outline**. This **route** can be good and not so good. (C4_CJR)

> I would definitely add a **course outline** to the course if I would do anything differently, it gives a sense of direction, knowing dates that sort of thing. (C4_QN)

If the course that is laid out for the students is pre-defined, they learn to follow the course that is laid out for them…without questioning 'why' it should be so or how it could be different. Such questioning may even be frowned upon. By having students as co-designers of the course, they learn how to follow a course, but they also learn how to make their own way in uncharted territories. In this manner, the course becomes an enriching experience both for the educator and the learner.

> "Moreover, such asking must be done by all who are affected by the consequences of that asking, including students who have the greatest vested interest, yet are too often left out of the process of considering matters of purpose that affect them so dearly" (Schubert, 1996:176).

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[79] See Appendix XII.2.ix IFS352 Final course outline for the final course outline that was developed at the conclusion of the module.

Fundamental to this co-designer approach is the buy-in both of the learner and of the institution as well as constant feedback by the student during the course in order to keep the course on track. Also, the aim or target needs to be kept in mind continuously, or else the class may go off course, just like a rocket is off target 90% of the time, yet it achieves its target by means of continuous small adjustments. If this kind of feedback is left for student evaluations at the end of the course, it may only improve the next course or have no effect at all.

> Knowing Walter for almost a year now I have accepted his **methods**. Others felt that they needed a **course outline** that clearly stated their tests dates, assignments and other tasks. Yawn, the working world does not comprise of such things, you do as told and do to the best of your ability. Many stressed the importance of such information not knowing that it was useless, I'm not learning if I know the date of my test. I quite enjoy this form of teaching, takes the boring elements away of sitting in class and listening to some dinosaur read a PowerPoint presentation. I was also quizzed about consulting; some students fumed when they heard it had no course outline. I can see now that students are brainwashed by the process, possibly why we do not excel in the workplace as we're given everything at school. (C3_CH)

As CH reflected, this approach is more in keeping with the working world and real life. As the popular Dutch poem states (Author unknown):

> "Van het concert des levens krijgt niemand een program" [80]

VII.2.ii Summary of course design

This section sets the stage for the analysis of my teaching approach by outlining the stated course objectives, and how it is a lecturer's prerogative to implement. It also indicates how my attitudes towards a rigid PBO approach had ameliorated and why I eventually chose to co-design the course with my students. This freedom in designing a course is not usual in HEI and the students noticed this lack of a course outline. Some objected to my approach and asked for more structure. Most of the students, however, valued this approach and the freedom that it brought to their learning. The next section will document how my teaching approach was informed, followed by Section 4 on the assignments that I gave the students, Section 5 on developing self-directed

[80] Source http://tierlanntijntjes.blogspot.co.za/2012/11/spreuk-van-het-concert-des-levens.html

learners and Section 6 on teaching students to become critically reflective researchers. The chapter concludes with how I facilitated student participation in the course.

VII.3 The assignments

This section explores the question on RQ4 "How do I teach students to do research of their own?" formulated in May 2012. The primary strategy was 'learning by doing' and was operationalised through allocating doing assignments. This section also provides some insights on one of the challenges that I experienced during my teaching on "How to get students to be creative and do original work?" formulated in Oct 2012 and January 2013[81].

VII.3.i Planning of assignments

There are a number of elements that comprise the teacher's planning of 'tasks' such as the content, the materials, the social community, the activities (which includes sequencing, pacing and timing), the goals (aim for the task), and the students' abilities, as well as their needs, and interests (Shavelson and Stern, 1981).

> "Research on teaching should focus on teachers' thoughts, decisions and behaviors in studying how students (e.g., class composition, conflicting goals), classroom context (e.g., social relations) and organizational context (e.g., textbook adoptions, assignment of students to teachers) influence these decisions and behaviors" (Shavelson and Stern, 1981).

The process of planning (whether it is required reading, purchasing a textbook or what time to be in class) starts with the basic problem of deciding what the students should be doing either in class or as tasks n. The authors claim that the options that the teacher exercises will depend on his/her *"perceived curriculum decision-making space and the factors influencing this…which in turn….will be defined by the teacher's curriculum belief systems"* (Lovat and Smith, 1991:156).

Although there are many alternate models of 'how' teachers plan their activities (for an example one such model is the reflective problem discovery/problem formulation cycle (Lovat and Smith, 1991:156–59)), the predominant approach is the rational PBO approach. Interestingly, although this approach is favoured by

[81] This question was not treated as a separate research question, as it was subsumed under the ethical aspect of teaching students to do research. See the Table XII.2.i Research Questions in the Appendix for a full list.

educational courses, it is not the one that they use in practice (Shavelson and Stern, 1981). The reason this occurs is due to the large differences that arise between the luxury of long-term planning cycles versus the immediacy of making decisions in the classroom.

> "Hence, they are faced first and foremost with deciding what activities will engage students during the lesson or, put another way, the teacher must decide how to entertain his or her audience while attending to the curriculum. Activities, then, and not the prescriptive model are the focus of teacher planning" (Shavelson and Stern, 1981).

In the classroom, the teacher needs to decide what to do, when to do etc. More importantly he needs to plan for what the student's needs to learn or do. With the emphasis on active learning in a curriculum of praxis, activities, tasks or assignments becomes a primary means for directing student learning. When these activities are presented in the form of tasks for students, they are referred to as 'assignments', at least in SA.

VII.3.ii Structuring the assignments

In education, an assignments can be defined as "a piece of work that needs to be done regularly", "a specific task with which a person or group is charged", "something assigned to be read or studied" (Assignment M-W, 2017).

> "The central structural element of teacher curriculum planning appears to be the task" (Shavelson and Stern, 1981)

Cycle 2 coding for the term 'assignment' returned 705 occurrences, of which 205 appeared near the term 'How'. These terms were reduced to those that referred directly to the research questions. Cycle 3 sequence coding of the subject for precedence and consequence reveals that the subjects of assignments are exam, final, technical report (Y2), literature survey, plagiarism, group, synthesis; i.e. it refers to the kinds of assignments that were given to the students. Assignments lead to activity, reading, teaching, tasks, designing, framework, know, contribute, approach, or a plan. The sequence can be illustrated as follows:

> topic>what_to_do>when_to_do>how_to_do>***assignment***>activity>tasks>teaching>contribute.

The derived definition can be stated as follows:

> Assignments are the tasks (and roles) which are given to students in order to teach them how to make a contribution.

Although the research case encompassed three years of teaching, the curriculum that I had developed culminated in the third-year research project, and therefore the assignments of the third year will be used in these following examples. Please see Appendix XII.5.i Representative Seminar Assignments on page 566 for a full list of the assignments that I gave the students. Following is a brief summary of these assignments.

Table VII.1 Summary of Assignments

#	Assignment	Description
1	Personal Introduction	Students are asked to write a short biography in class.
2	Reflection on Student Life	Students are asked to write a short essay on their experience as a student at the institution.
3	Empirical Observation	Students are asked to conduct a 30-minute empirical observation at a convenient location somewhere on campus.
4	Theories in IS	Students in groups of 3-6 were asked to conduct a literature review on one of the theories that are used in IS and present a summary of their findings to the class.
5	IS Research Methods and/or Philosophy	Students in groups of 3-6 are asked to present on a research method/methodology in IS and present these to the class.
6	Individual Summary/ Group Synthesis	Students are asked to find a related article on their topic/area of research and write a summary of that article.
7	Exam/Individual Assignment	Students are given the option of doing an individual or group research project.
8	Course Reflection	Students are asked to keep a research/reflection diary throughout the semester and hand in a final course reflection at the end of the semester.

From the numerous reflections about the assignments, the students indicated that they had to teach themselves how to do the tasks in the assignments, and also that the assignments themselves taught them a number of things as indicated in their reflections.

> I had to *teach myself* how to effectively conduct a **literature review** and I was able to do this because I was doing similar writing throughout my academic career, maybe not to the letter but it was almost there. (C4_STS)

> For instance, the **assignments** required us to practice research tools like literature reviews, summaries and synthesis. *No* lecture has been dedicated to *teaching us how to do this* but, we had to figure out ourselves how to do it and

> managed to do it so well that I have learnt that I can do work on myself and educate myself without an instructor. That is the basis of philosophy. There are some things which one cannot be taught by a lecturer but one has to be given an opportunity to do the things. (C4_KM)

> This **assignment** did *teach* me a lot on how to conduct an interview, how different people are and can be, as well as, how body language influence an outcome of a process. (C2_RG)

The students were, however, not aware that I was always in the background, providing them with strategic advice, articles to read, pointers to resources and as a general source of support when they needed to know something. [82]

> He encouraged us to take initiative, be self-directed, think freely and be innovative and creative. He strategically planned our **assignments** as well as classes. (C4_MH)

Most of the communication about the assignments was either via the E-Learning system, emails, WhatsApp, through the group team leaders or during class times. In some ways, this approach also compelled students to attend the classes[83].

> We had no choice but to attend every lecture in order to know the structure of his **assignments;** there were no lecture slides. (C4_NNM)

In most cases, further clarity on the tasks and assignments was either obtained in class, or through the group leaders.

> One of the things I liked about the **assignment** was the group leaders' meeting. This is where as group leaders could get clarity about what we are supposed to do exactly and take the feedback back to the group. Not only do we get clarity, but this is where we would share a pool of ideas about what is supposed to be done next. (C4_VN)

This assignment, for example, allowed the students to think creatively and gave them the opportunity to explore the ethical nature of the discipline as was expected in the curriculum as well as learn how NOT to write an academic literature review or essay.

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[82] See reflection IFS352.2013 Marking, 8/7/2013. Reflect and feedback on how I was able to influence the group assignments e.g. the videoclip on Synthesis, and the belief that I didn't plan the lectures, without students realizing it. I also realise that I do hide my light under a bushel.
[83] The average attendance figures for the class of 100 students for the whole semester was 84%.

> However, after doing this **assignment**, it forced us to think abroad instead of narrowly, we had to obtain the importance of research as an art form. Thus, tracing information backwards first instead of forward, finding quality research and informally discovering the fuss about plagiarising. (C4_SN)

Yet, despite the latent support that I provided the students in the conducting of their assignments, the team leaders exercised their independence when I did not attend all their team meetings nor respond to all their questions by coming up with their own ideas on how to manage or perform the tasks. Refer to the process of forming groups in Section VII.4 Research curriculum for a further discussion of how I did this.

VII.3.iii Sequencing of the assignments

Putting learning activities in a suitable sequence in education is referred to 'designing' instructional sequences into a curriculum, a programme, a course or a series of activities (Gagne, Briggs and Wager, 1988:161)[84] i.e. instructional design[85]. Sequencing answers the question of 'how' things should be arranged and not necessarily 'what' should be arranged. The kinds of things that sequencing has to contend with are 'course', 'topic or unit', 'lesson' or 'lesson components' (Gagne, Briggs and Wager, 1988:165). Other terms that are used for sequencing in education is scaffolding (Hammond and Gibbons, 2005; Maybin, Mercer and Stierer, 1992), a process where educators systematically build on students' prior knowledge and skills as they develop.

> "When a proper *sequence* of prerequisite skills is established, the learning of intellectual skills become easy for a teacher to manage" (Gagne, Briggs and Wager, 1988:173).

In practice however, lecturers do not necessarily follow a structured approach to planning their lessons, tasks or activities (Wilson, 2013). Nor do the written plans accurately reflect the richness of the lecturers' mental representations in arriving at those plans (Smith and Lovat, 2003:155). For example, my written planning for the semester started with a short reflection[86], 3 days before the first class of the semester.

> I have still not yet decided what to do with the class of 2013, but I will be using more videos (thanks Yvette)

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[84] A classical and still widely used reference today when it comes to instructional and curriculum design.
[85] See Section IV.2.vi Instructional Design
[86] See reflections in IFS352.2013.1, 28/1/2013

> Firstly, I'll show the students the video by Pink Floyd - We don't need no education.
> Then the video highlighting Milgram's experiment.
> I'll also test the class and determine where they are at.
> There is a chance the PCs won't be set up, so I'll ask them to write their introductions for the following week.
> The following week, I'll do the empirical observation during class time.

This "plan", although simplistic, encapsulates a significant amount of learning that I had undergone during the prior two years on how to teach, as well as of researching these practices. For example, Yvette and I had just completed an intensive year (in 2012) of teaching a group of postgraduate students (± 60 students) how to research. Yvette was fond of using video clips in class and opened most classes in that way…hence the reference. The purpose of the videos was to foster the students' beliefs that education (as it is demonstrated in the video) cannot culminate in creativity (with reference to the boy who was ridiculed for writing poems in the class), and that this kind of education merely aims to conform students and destine them for destruction. Simultaneously, I was also teaching the full-time honours students a research methodology course (20 students) as well as running a postgraduate programme for converting non-IS graduates (20 students) to an IS Honours. Following is a list of the assignments that I gave the students to do in year 3, as well as the time allowed for these as noted by one of the students (C4_QA).

Table VII.2 Assignments 2013[87]

#		Announced Date	Due Date
1	Individual Reflection (On Self) ICE (5%)	31/01/2013	31/01/2013
2	Reflection on student life (5%)	7/2/2013	7/2/2013
3	Required reading (3 Articles)		
4	Plagiarism Assignment (20%)	14/2/2013	4 March 2013
5	Individual Article Summary (10%)		4 April 2013
6	Group Assignment Synthesis (20%)		4 April 2013
7	Class Test (On Articles read) (20%)		
8	Individual (Interim Reflection) (20%)		2nd April 2013
9	Exam Group Research Document (50%)		31 May 2013
10	Exam Reflections (50%)		7th June 2013

[87] See Appendix XII.5.iRepresentative Seminar Assignments for a more comprehensive list on pg. 399.

Here follows a brief description of what the students were required to do for each of these assignments.

1. *Individual Reflections*

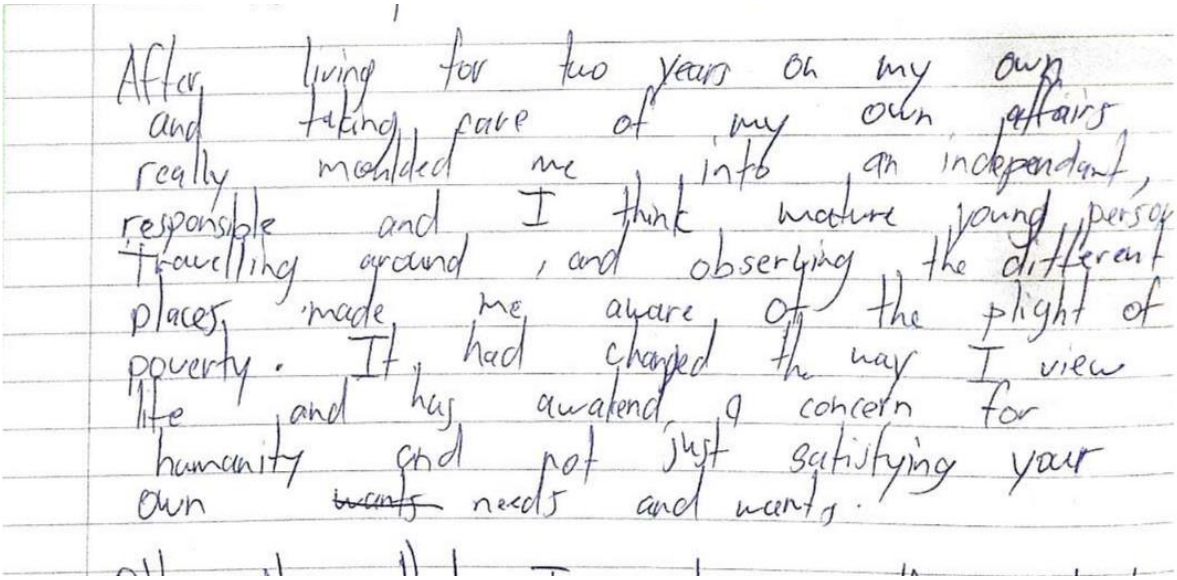
During the course of the two preceding years, I had realised that students were not necessarily producing their own work, and I was struggling with the idea of encouraging creative thinking/writing. This combined with a reflection on their expectations, a practice that I had started while training software developers in industry, resulted in an individual reflection on the first day in class on the students' backgrounds and their expectations for the course. The instructions were as follows.

> Provide an introduction of yourself, your academic achievements and major, why you are doing IFS352, your expectations for the course, and the results of your 2nd year modules.

Not only did this allow me to learn more about my students, but it allowed them to reflect on their own lives, as well as lead them in the direction of being able to write their own CV's/backgrounds for social media such as Linked In and for their future careers.

> Therefore, even though the assignment was to write about myself and define who I am and my background, I had to write more than just that to show that I have grown, changed from the same person I was back then and also to relate and/ compare my past and present so as to consider the future because at some point the future will be the present and the present will be the past, they are related. (C4_SM)

Because the PCs were not set up in the lab, and there were more students than computers, I handed out test scripts for them to write their personal reflections in.


After living for two years on my own and taking care of my own affairs really moulded me into an independant, responsible and I think mature young person. Travelling around, and observing the different places, made me aware of the plight of poverty. It had changed the way I view life and has awakend a concern for humanity and not just satisfying your own ~~wants~~ needs and wants.

Extract 1 Individual Reflection (C4_MH)

When marking these reflections, I was also testing Mezirow's framework (Kember et al., 1999) for evaluating reflections and attempting to determine the level of criticality of students' reflections. I also used that framework as a marking rubric for these assignments. When the time came to divide the students into groups for their research project, I used the marks that these students obtained for this assignment in order to select the group leader. As the results will indicate, this was an inspired decision, as these were the students who had showed the most individual growth and level of criticality.

2. *Student Life at SAU*

In year 3 I attempted a different approach to sensitising the students to themselves and their environment than the empirical observation assignments (see link to previous section) that I did in years one and two. So, I asked the students to write a reflection (for marks) of between 3-4 pages on their lives as a student at SAU as well as include a section on what they learned during the process[88].

> We learnt about ourselves and created a background on our then process and a history that we can look at when evaluating how far we have come. This was done in the form of 2 **assignments**, namely; the "About Yourself **Assignment**" and the "Life in SAU **Assignment**". (C4_NNN)

[88] The instructions included the following statement "You are free to focus on any particular aspect, based on your experiences as a student at SAU. Please structure your essay as follows: 1. introduction, 2. experiences, 3. learnings, and 4. conclusion."

This links in with Q1.vi 'understanding what we see' and Q1.ii 'sharing of our opinions'. This ultimately assisted the students in gaining a perspective of themselves in the context of the university and aimed to reinforce the first level of how they think about themselves.

I also sensitised[89] the students to issues of race, gender, language, environment and so forth[cxv] through an in-class exercise of the students physically grouping themselves according to the criteria, i.e. age, gender, language, etc.[cxvi]. This aids them in comprehending the formal aspect of society (Q2).

> Today's class was also interesting as always. We did Quantitative Research, we were checking the different categories of the people in class; the age, race, language, ethnicity and origin. Everybody was so excited going around the room finding people who are in the same category as them. (C4_VN)

In a later class, I used a video of the Milgram experiment to reinforce the view of how the educational system could conspire to conform society through polarisation and differentiation of countries of birth, language, religion, race etc. to illustrate how society and the educational system can become part of the oppression when people in authority ask willing subjects to do something that is not ethical.

3. Required reading

The required reading for this course was taken from three articles, namely:

- Is google making us stupid? (Carr, 2008);
- Conducting a literature review (Levy and Ellis, 2006);
- Smartphone application usage (Uys et al., 2012).

I used these three articles for three distinct reasons. Firstly, the Google article was intended to show the students how distracted we have become as a result of technology and give them an opportunity to reflect on their own lives. One of the outcomes of this can be illustrated by MA's reflection.

> Trying to define the theme, what does it mean to be human, has really forced me to go into deep philosophy. This theme and certain aspects of this module really encouraged me to question man, and even deeper, existence. (C4_MA)

[89] Despite the sensitive nature of the subject, esp. in South Africa, I realised the need to explore these beliefs with the students from a philosophical perspective (see Stenhouse, 1975:127).

The second article was provided firstly so that the students could get an idea of what process they could follow to conduct a literature review, and secondly, it is a substantial article that would require sustained reading for them to make sense of it. For most of the students it was a useful article, and for others a prompt to further research.

> After reading the article on how to write a literature review and a methodology (Levy and Ellis, 2006) thereafter I was left confused. I felt forced to research other examples and layouts which lead me to using the article "Guidelines on writing a first quantitative academic article (Kotzé, 2007) (C4_NNN).

This article also links directly with Q3 on how we plan or structure what we do. This article directly engages the student with the 'procedural approach to planning as advocated by Stenhouse (1975). This approach builds on the 'Form' thesis of Hirst and Peters (1970) in that "each *form* of knowledge possesses its own peculiar structure, and, therefore, required a distinctive methodological approach to the ascertaining of this knowledge" (Lovat and Smith, 1991:127). This is in stark contrast with the objectives model where the institution or course sets limits to what should be known or achieved by the student in a specific timeframe. In this way it opens up the possibilities for exploration beyond the curriculum.

The third article was the actual research paper that the third year students from year 1 produced. This both showed the students in the class that it was possible for a group of third year students to publish a paper i.e. it assisted them in developing their self-belief, but moreover it directly targeted the theories as outlined in *Chapter VIII.3.v Gaining a sense of direction.*

4. Textbooks/Technology/Tools

One of the problems that I experienced with textbooks and even articles is that they are static, i.e. once they are published, the only changes are in the next edition. Also, the predefined questions are mostly not applicable to our students' lives as they are derived from different (first-world) contexts. The reason why I didn't prescribe a textbook on introductory philosophy or research methodology is firstly that I wanted the students to explore the practicality/first hand nature of these subjects and secondly, I wanted them to leverage the technology tools such as the internet and academic journals for finding out more about the subject.

Textbooks don't talk back, i.e. you can't ask them any questions. Thus, it encourages (mostly) that the students turn to the lecturer to ask him/her explanatory questions. Google, on the other hand, allows for asking pretty much any question under the sun. And with its predictive text it even prompts the student to complete the question. The beauty of this approach is that in most cases the educator can refer students back to Google if they have questions that are not directly related to the organisation of the course or the assignment, i.e. any 'content' question can be answered by Google and academic websites. Obviously, questions such as when the assignment is due, or how long it should be can't be answered by Google. Anything else is fair game.

> The internet was definitely a major tool as it allowed me to access a wide range of information and journals in order to gain more knowledge on the **assignments**. It also served as a solution for any confusion and ways in which to complete the tasks. For instance, I learnt how to write a literature review and conduct a synthesis by conducting internet-based research on it (C4_SBP).

Clearly if students are able to teach themselves how to write a literature review and synthesis with reference to Google alone, it seriously brings into doubt the need to teach these aspects in class[90]. What the students required was the ability to locate high quality peer-reviewed articles. For this they first needed to be able to discern what are 'high quality peer reviewed articles" and then secondly where to find them. For this purpose, I set up the workshop with the faculty librarian to conduct a practical exercise in locating articles.

> She came to show us how to access peer reviewed material on the university library page. There are quite a few databases specifically for information systems and most of us are finding out about them now in third year. All these years we did research for **assignments** and we never knew about the library databases. Walter asked her to come as this would help us with the plagiarising assignment he is going to give us. (C4_VN)

The bulk of the questions that the students were asked to solve were related to the topic (mobile technology in education) and direct references were taken from the prescribed articles, which meant that the students got an even better opportunity to explore the subject matter.

[90] For those readers interested in quantitative measures, this student (C4_SBP) received 75% for this particular assignment and a final mark of 75% overall.

> The workshop gave me a better understanding on how to get relevant information about any **assignment** or research. It has also given me another tool on where to get all information books, articles journals etc. The workshop has open other doors for me in conducting research … (C1_LPM)

> This was a great help, not only with this module but my other modules as well. For the past 2 years I only searched the internet for article looking at **Google** and **Google scholar**, but when I learnt about the databases on the SAU website it really helped me a lot and I think if I never learnt this I would never have found my article on who are the users of smartphones. I searched everywhere and that was the only place I found an article. (C4_NCC)

> I am good at research now as I'm familiar with the **SAU databases** and **Google Scholar** is now my homepage. (C3_HH)

Even though I had realised from the Master's students I was supervising at SAU, that there were some challenges with their academic writing and referencing, I didn't realise how far the problem extended. The fact that the third year IS students were never exposed to the academic databases (and in some cases Google Scholar) meant that the majority of assignments up to third year level were mostly non-peer—reviewed articles.

> Most modules just have normal **Google** research assignments which I think teaches us nothing, whereas the type of assignment constructed by the IFS 352 lecturer got us to think out of the box. (C3_MM)

Considering the high levels of plagiarism that I encountered, this would mean that the students learned nothing more than copying and pasting pieces of text from various websites and rephrasing these in their own words. This would indicate a high level of non-reflective or habitual action.

> "Non-reflective writing occurs when students search for material on a set topic and place it into an essay without thinking about it, trying to understand it, or forming a view. At times the material is wholly or partially plagiarized" (Kember et al., 2008:373).

The other tool that I introduced to the students was Mendeley. The idea was that each group collected their own articles which they then used for their subsequent summary/synthesis assignment and provide them to the "Reference Manager (C4_QA) to incorporate in Mendeley. In order to ensure that the articles were

somehow related to the topic, we gave each group a seed article from the list of references from the prescribed article.

> I realized that I had to be more organized. I then learnt how to use drop box and **Mendeley** which made my life much easier when it came to downloading and saving all the group articles. (C4_QA)

The number of articles quickly added up, as she needed to manage more than 100 articles, some of which were duplicates, on the topic that was given to the students. From a publishing perspective, it would also be useful to have the articles already in Mendeley so that referencing would be simplified, as I learnt the hard way in the first-year assignment trying to locate articles and references the night before the submission was due. A third tool that I introduced to the students was Dropbox. At that stage few of the students had heard of it, and even fewer were using it. The idea of having Dropbox was for the students to share the articles with the reference manager as well as other readings that I gave them.

> **Dropbox** is great the class could easily share articles that were collected by the groups and also material that could assist us with the assignment like last year's survey. (C4_VN)

The last tool that I introduced was Google Docs, which was used for collaborative capturing of the survey results. The problem was that the survey was quite large, and I initially tried to implement masking in order to restrict the kinds of data that could be entered. This resulted in each survey taking more than 20 minutes to capture. This amounts to a significant amount of time for the students to have captured more than 2000 questionnaires.

> I encountered **Google Docs** and **Google Drive**, now these tools I had never used before and found them very efficient and organised except that the program became slower when there are a lot of users and also if the internet connection is slow. (C4_QN)

We didn't not use an online survey tool such as survey monkey, based on research that one of the teams did in the second year. Essentially, even though most of the students used phones on the campus, most of them were not smartphones at the time. Computer lab seats were also limited often with slow internet connections, and thirdly sending out a survey request online had resulted in minimal responses. In addition, I wanted the students to be exposed to physically interviewing other students in order

to gain experience, and also to promote the research project to them on a one-on-one basis.

5. Reflections on the test

Strictly speaking, a test is not considered to be an assignment. I am however including it here for two reasons. Firstly, even though most of the test was based on 'content' questions[91], I had included a section in order to evaluate whether the students recognised the purpose of reading these articles, as well as the significance of my approach of trying to teach them to teach themselves and become critically reflective.

> Time went and we received feedback on the assessment we as a class wrote only to find out that this exercise was an exercise to test or see our stand of thinking, as the lecturer said some of the students met his expectation but to others there still buttons that needs to be adjusted they are still bound or not open minded. (C4_LD)

This second aspect speaks directly to my research questions. I had included a reflection of my own, derived from Rinpoche's claims to the challenges we have in facing the present moment.

> The basic problem of life is not so much in how to sustain (comfortable) living or avoiding pain, but one of critically examining the basis of such living.
> For it is by critically reflecting on our fragile human nature that we can come to a true understanding of who we really are, and what our true purpose is.

The kinds of questions that I posed to the students were:

- What does it mean to you to reflect critically?
- What are the most important things that the lecturer has been emphasizing during this course?
- What are the most important new things that you have learnt from this course?
- How did you acquire this new knowledge?
- How has this changed your life (or not)?
- What are the implications of your new knowledge for your future?
- Based on your new understanding of yourself from this course, what defines you?
- Please list any questions that you may have?

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[91] I had used a similar version of a test that I had developed for a group of Honours students in another province in SA.

Some questions that the students raised (in no particular order) were

- I do not assess you on how much you learn, but on how much you are willing to learn (C4_RS)
- How did you begin to think the way you do? (C4_RS)
- Was your purpose this term to evaluate how we think? (C4_QN)
- Why do we have constant discussions about the way we think? (C4_MH)
- Do you yourself think that your methods and approach of teaching is beneficial to students and why? (C4_RW)
- Have you ever influenced other lecturers to undertake your approach to teaching? (C4_RW)
- What did you find interesting about teaching this course? (C4_LC)
- What is your aim for this course? (C4_LLL)
- What outcomes are you mainly looking to achieve? (C4_FP)
- Have you learnt anything from us? (C4_ZS)
- Also asking the question why is a step to get to the core meaning of things. (C4_VN)
- What is your best moment experienced at SAU? (C4_LC)
- How will this huge project affect us all in terms of teamwork and working with 90 other people? Some who we don't even know? (C4_FP)
- Questions regarding this test e.g. MCQ, Article etc. (C4_EAT)

Even here, the students showed a sharp acuity in recognising that I was asking them to become critically reflective [cxvii].

6. *Reflective diaries*

Keeping a reflective diary is useful source of information on a researchers thought processes, both for Educators and students (Glaze, 2002; Moon, 2014; Wallace, 2011). Students were instructed to keep diaries as I found that the quality of reflections in year one and two was not at the depth that I was expecting. In year two I realised that students favoured recent events in their reflection, and in line with Moon (2014) I emphasised the use of reflective diaries for the students in year three from the start of the class.

> The lecturer has been stressing the reasons that it is important to keep a **diary** of everything that happens in the module, as well as mapping out our progress and methods etc. We then were assigned to submit an "extract" of said **diary** to the lecturer in order to show our progress, as in; where I am in Research towards my final exam, What I am having success with, How I feel about myself, How I feel about my group members, What I have learnt so far about myself in the course, and finally – What I have learnt so far about others in the course (C4_NNN)

In order to encourage them to reflect regularly, I allocated marks to it. Initially minimal marks were allocated to these reflections (5% of the assignment marks), culminating in almost 100% of marks for reflections on assignments. The advantages of allocating marks for reflections are that students have a behavioural motive to do the assignment well. Disadvantages are that they may model their behaviour to impress or write what they believe is expected. Other challenges with reflections post facto have been indicated as poor memory, especially if a long period has elapsed between the action and the reflection, selective memory where key aspects are recalled and seemingly unimportant aspects are overlooked, reluctance to express thoughts and feelings that others may read, or the inability or unwillingness to confront personal values or norms in the process.

Based on my experience, the advantages are the richness of feedback from students on the assignments and course, especially as compared to more traditional course evaluations. They are more constant throughout the course, and they are able to help in reducing communication distortion. This allowed the students to have some reference against which to measure their growth and to be able to evaluate their feelings at the time.

> This module showed that there are major advantages to **reflecting** on one's day or week or anything one did. The main point of **reflection** is to learn from what you have done, to see if you went wrong somewhere or is there a possibility of some improvement, maybe one can try and do it differently next time and one would achieve a better result. The activity of **reflection** can be done in any aspect of one's life whether it could be in one's academic life, work life, social life and even relationship life it can be applied. (C4_RM)

> Going back and referring to my **diary** I was surprised though by some of the feeling that I found had been evoked in me. Working and actually putting down words just after the right act I failed to get the lessons from all my work. I have to moderate some of my emotions in order to see the bigger picture. (C4_PM)

The most popular means of recording reflections is diary-keeping of specific events and reflections on these events (Heath, 1998). Diary-keeping is, however, a sustained practice requiring significant commitment and rigour on behalf of the student and educator. A more appropriate and manageable method introduced to this course is that of event-based reflections. In other word, students get given an assignment, and are asked to reflect on the assignment.

> Dear **diary**, I am out and it was good being with you. At the end of the day **diary** I am stronger and more courageous now. There are no limits except the ones I give myself. (C4_PM)

Reflective diaries add rigour to the process of reflection, as one tends to forget distant events, as well as providing a rich source of reflections to reflect on (Glaze, 2002).

7. Plagiarism assignment

This section responds to the question that I had grappled with in teaching students how to do their own original work. One of the fundamental oppositions to students thinking for themselves, is students imitating others. This can be expressed either in thoughts or ideas, actions or interests as well as behaviours and habits. In life and on the stage, imitation is encouraged i.e. imitate the wealthy, the famous by wearing the same or similar clothes etc. In academia imitating another's writing is called plagiarism.

> "Copy from one, it's plagiarism; copy from two (many), it's research" (Wilson Mizner, 1876:933).

Unfortunately for our higher education system, students have been encouraged to regurgitate materials from textbook after textbook in examinations that merely test their memorisation of the subject, and not their abilities to recognise authors' arguments and the source of such thoughts, i.e. very few examination papers ask the students to cite the source, unless such theories or concepts are seen as the standard or competing theory in the field.

The way that we design our research assignments is critical to the way that students respond to them. Lathrop and Foss (2000:6) indicate that the more open we make our research assignments, the more opportunity there is to plagiarise. As was indicated before, plagiarism can be considered non-reflective action. There is thus no benefit in encouraging such behaviour. Unfortunately, however, despite their brief exposure to an academic literacy course for some of the students, they had minimal instruction in how to write and reference appropriately.

> "Many students need instruction on how to research a topic, outline it, paraphrase and quote selectively, summarize, make note cards, rewrite material in their own words, and cite sources in each instance" (Lathrop and Foss, 2000:163).

One of the main reasons listed by Lathropp and Foss (2000) that foster plagiarism is the time pressures on students to hand in assignments, as well as pressures to perform and get good marks. The kinds of things that academics can do to limit the opportunities for plagiarism are proper guidance as well as regular advocacy against it, and also providing students with written instructions on how to avoid plagiarising as well as sufficient time to complete their assignments (Lathropp and Foss, 1990:4).

> "Estimates are not available on the prevalence of plagiarism among graduate students as a whole, but some data emerge. In a study that used the Google search engine to detect plagiarism in 210 master's theses (McCullough and Holmberg, 2005, 438), 'potential occurrences of plagiarism were found in 57 of 210 (27.14%) theses'" (Caravello, 2008:146).

The university does have access to originality checking software (Turnitin) yet there is much resistance against it and complaints amongst the staff that it is not accurate and of little value to them. The problem that I was confronted with was that students demonstrate no originality when plagiarising another assignment, and that by measuring their development against an academic essay would be pointless if they were not aware of how to approach such an assignment.

> Just reflecting this morning, that students see the end product of songs, or textbooks, or theories, but that they have no idea of what went in to creating it, and that the crux of a reflective practicum is to develop that awareness of originality. Obviously, it is far easier to copy (plagiarised) others' ideas, and individuals may develop their originality differently. It is also far easier to teach theory (content) than to teach process/method. The challenges with teaching research are that it is something you do, and cannot just be theoretical. (Personal Reflection 29/1/2013)[92]

Furthermore, as I discovered in the earlier years, the quality of such reviews would affect the entire project. I thus thought that instead of trying to teach them to be original in their writing, that I would evaluate how students plagiarise. The idea for this came from (Lathropp and Foss, 1990:4). The instructions on the E-Learning system ranged from a complete set of instructions for example amongst others the plagiarism assignment, to brief prompts to upload their assignments by a certain date.

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[92] See reflections in Originality

With the plagiarism assignment, the students were specifically told that I was not going to provide them any support on the assignment. In effect, I was not going to help them any further to 'cheat'.

> There will be no consultation on this assignment, unless the instructions are contradictory or not self-explanatory. If you do ask other SAU academics or staff to assist, please provide them with the full assignment instructions as provided here with no modification, including the plagiarism declaration, so that they can understand the full scope of the assignment.
> The primary purpose of the **assignment** is to develop your understanding of the ethical, moral and social issues raised during the process of conducting research, by exposing you to methods that students use to cheat and plagiarise articles from the internet and present it as their own.

The result of this assignment was that 20 students managed to achieve a Turnitin score of 0% on an article that they acknowledged was not their own[93]. This shows that if students tried hard enough, they could beat the plagiarism detection software.

> Come to think of it when I went to the writing centre in order to get help on how to 'cheat' the system by plagiarising a paper, they looked at me as if I was joking. They found it difficult to assist me, which made me turn to my 'best' friend Google. Google seemed like the only form of help I could get. I also received help from the Librarian on level 7 who gave me ideas about where I could get a good article to plagiarise. (C4_SKP)

What was more encouraging was that the students were innovative in their approaches as well as researching different ways that students plagiarise. In this way they obtained a far greater understanding of how 'not to' plagiarise than if I had given them a traditional 'lecture' on how to write. I had involved the writing section to present a workshop to the class; however, we focussed on improving the quality of their writing.

> I relieved that it is over and it actually made me realise something in the process- that it is actually more work to copy someone else's work because you still need to make it seem like it is yours in the process, of which it is less stressful to do your own essay, but let the work of other authors to guide you in what you want to achieve. In the end though, I found it very creative and innovative of the lecturer to allow us to see the latter for ourselves. (C4_QN)

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[93] A score of 0% means that 100% of the article is original.

One of the ways that I tried to avoid plagiarism by the students was to shape the assignments to favour free writing and not necessarily academic writing. In the end, however, the students needed to write a literature review, and in conjunction with the writing centre, we developed a staged process of getting them to locate a suitable article, write a summary, and as a group write a synthesis of these different articles.

8. Individual literature review

I had discussed the literature review with the group leaders. Eventually they took the plunge and identified the main topics from the 2011 article, through using the elements framework[94]. The Assignment instructions that I sent out are listed below.

> Your next assignment is due on the 4th April, which is to conduct a literature review on the topics as listed below. Each student should try and find a key article in the topic area, then discuss it with the group to see how your article fits in with the group. You may have to read a number of articles in order to find the most relevant article, or one that you can use as a group to write your group Topic Synthesis.
>
> There are some good YouTube clips on how to write a summary/synthesis, which you can look at. Just google them. (Literature Review Assignment, 14/3/2014)

Due to the vagueness of the instruction as well as the scope of the task, the management team started to panic when they were getting numerous requests from teams on what to do. In the end they held a "management meeting" to discuss the issues (see Having Fun Year 3 for this breakthrough), resulting in the following breakdown of topics for the students to do. Refer to *Assignment instructions as issued by the management team* for the email that they sent out using their own initiative. These were sent out to the students by the secretary of the management team, thereby also showing that students are able to give assignments to other students. In order to support them, I sent out a follow-up email, so that the other students thought that the instructions came from me.

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[94] See Reflections in Initiative (Hoosain)

Table VII.3 Research topic allocation

Element	What	Who (Group)	Grp
Costs	voice costs, data, SMS etc. across all networks	C4_KK and C4_STS	5 and 10
***Categories* of applications**	productive apps – word, PowerPoint instant messaging apps – Facebook, twitter and all the different categories	C4_ZA and C4_YD	11 and 16
***What* are smartphones used for**	communication, in case of emergency, learning etc.	C4_PM and C4_CL	8 and 6
***How* are smartphones used**	SMS, voice calls, searching internet, games etc.	C4_LD and C4_KM	14 and 18
***When* are smartphones used**	time of day	C4_ET	2
***Where* are smartphones used**	in lectures, at home, on the go, while shopping, taking a smoke break etc.	C4_V	15
***Who* uses them - The elements of Biographical Information pertaining to students**	Level of study, course undertaking etc.	C4_TZ	17
***Why* do students use smartphones**	Reasons for usage	C4_TL	1

In the process, however, the students realised that they needed to do their own research on how to do the assignments, as support from my side was relatively scant. I did share a copy of a master's dissertation from one of my students so that they could get an idea of the structure.

> I learnt that we actually had to do our research on most of the things, that we had to decide for ourselves what had to be done, I remember this realisation very clearly because my group and I were stuck on a literature review that we were given by the management team, the one where all groups were given different topics to focus on, we absolutely had no idea what a research design was or how we were to write a literature review on a theoretical framework that would be suitable for the class's research design. Fortunately, we had something to start from, the master's thesis that was posted on drop box, but besides that, there was no assistance or guidance from the management team. At that very moment that's when we realised that they themselves probably did not know how to guide each and every group and it was too much to ask them for everything and that's when trusting my/our instincts and **learning how to take initiative** was first learnt. (C4_QN)

Understanding came about when the students realised that they were all in the same boat, and the success of the project and the semester marks were hanging in the balance if they did not come thorough. In the end very few marks were allocated for this part of the assignment, as I biased the marks towards the students' reflection to

see how they actually resolved the issues themselves. See the rubric that I developed for the marking of the examination assignments and reflections in XII.5.iv Exam assignment rubric.

VII.3.iv The format of the assignments

Even though the students were given a basic structure for reflection, there was limited guidance on the structuring of their literature reviews or how the questionnaires should be developed. One way that the students managed to do the task was to do research on the internet on how these documents needed to be structured. Another was to discuss it in their groups or to ask the group leaders.

> We consistently had a problem with Walter as our lecturer since there was no layout, **format** or criteria provided. Since we are supposed to be marked accordingly, there is nothing that we can be marked against. (C4_NM)

> On Tuesday I received numerous questions and queries from the group leaders, most of which were questions like what is a lit review, what is the **format**, how many pages must it be, and others which were questions that the leaders could have researched and used their own judgement, I assisted the groups with questions that were fair to be asked. (C4_MH)

> Other question asked was the **format** of literature review. Decided to tell them to read the article "How to Conduct a Literature Review." (C4_SKP)

Part of what prompted this 'additional' research was the apparent lack of 'layout, format or criteria' for the exam assignment. I had of course provided the students with links to online articles and video clips on how to conduct a literature review (Levy and Ellis, 2006) as well as writing a summary and or synthesis (How to Write a Summary, 2012) which the writing centre introduced me to. The students had also undergone an introductory course on academic literacy in their first year that introduced the basics of writing literature reviews, introductions, conclusions, referencing etc. Based on the writing abilities of the students and the high level of similarity /low level of originality of some of their writing (measured against the Turnitin score), I'm not altogether sure how effective such training was or how much practice the students had in applying these concepts in other courses.

The ability to format or structure a piece of academic writing is considered to be a required competency at postgraduate level and is pegged at a level 5 in Blooms taxonomy. It is highly unlikely that this can be taught to students by giving them

assignments without guiding them on how to do it. For example, at an undergraduate level, students are frequently given 'literature review' assignments or essays that are mostly accompanied by a prescribed format. Of course, if the lecturer gives the students a predefined format, this drops down to a level 3 (use) or even a level 2 (outline, discuss or explain).

Independent report writing is a pre-requisite skill at the post-graduate level according to the post-graduate calendar (SAU_PGCalendar). What is not clear is how the students are expected to develop this competency between their first-year introduction to academic writing and their postgraduate years. By giving the students a piece of research to do without guidance on how to do it is irresponsible and can lead to high incidences of plagiarism (Howard and Davies, 2009). Giving the students numerous personal reflection assignments mean that they learn to find their own creative voice in their writing. Furthermore, by giving them assignments in groups allows them to learn from each other or able to ask their peers should they be uncertain of what to do.

VII.3.v Motivation for learning

The current perspective is that the students approaches to learning are in response to the teaching environment that is created by the institution and the lecturer[95]. What this means is that it is easier to foster a superficial approach to learning by giving students too much structure or too much support. Fostering a deeper learning approach is of course more difficult and requires more time, both to change the students' motivation and give them sufficient time to learn (Marton and Säljö, 2005). Biggs continues to answer this through a strategy of 'constructive alignment' that emphasises what students do as opposed to what they are or what educators are supposed to do (see also John Biggs, 2003; John Biggs, 2014).

> "Desirable student learning depends both on student-based factors – ability, appropriate prior knowledge, clearly accessible new knowledge – and on the teaching *context*, which includes teacher responsibility, informed decision making and good management" (Biggs and Tang, 2011:27).

[95] An aspect that is examined under the element 'Where'.

These aspects emphasise the link between the individual learning approach and the educational context or circumstances.

> "We are dealing with an interaction between personal and *contextual* factors, not unlike the interaction between hereditary and *environment*" (Biggs and Tang, 2011:28).

This claim is useful to know, yet it falls short of specifying what interactions exist between the circumstances and the individuals learning. The question that arises when considering the elements of circumstances (and my thesis statement) is, what do these different approaches tell us about how we are supposed to teach? In essence, a superficial approach to teaching will emphasise the knowledge content (*which* topic or subject) at the expense of the other elements of circumstances i.e. the learner (Who) including their backgrounds and interests, the environment (*where*) i.e. the kind of physical and psychological environment that the educator or the institution provides, *how* he teaches and *how* students learn, *when* classes are, how long (*when*) students have for assignments, what resources or tools (*with*) he has at his disposal as well as the topic or subject (*which*) under discussion and most importantly what students are doing or need to do. Finally, a deep approach to teaching needs to consider '*Why*' students do things, i.e. their motivations, desires and perspectives. The question that comes to mind is as follows: Are students merely motivated to obtain the certificate or pass the course, exam or dissertation defence, or are they motivated to actually learn something in the process?

VII.3.vi Summary of assignments

The course was primarily structured around the 'doing' of assignments or learning by/through doing and reflection. This section outlines how these assignments were planned, structured, sequenced and formatted as well as how this motivated a deeper approach to learning by emphasising 'what' students need to do in a curriculum of praxis as opposed to 'what' students are required to know.

1. *Planning* of activities: *Assignments* are the primary means for directing students learning activities. Lecturers need to decide on these assignments based on their personal epistemologies.
2. *Structuring* assignments: *Assignments* need to indicate to the students *what* to do, *how* to do it, *when* to do it by and so forth. Lecturers need to provide students

with strategic advice and resources (mentoring) for doing the assignments themselves, and not training on 'how' to do the assignment.

3. Sequencing assignments: Sequencing allows the teacher to scaffold students learning through the assignments.
4. Format of assignments: The kinds of assignments determine the kinds of activities and learnings that the students acquire.
5. Motivation for learning: Structuring the learning as a series of assignments gives the students the responsibility to discover the structure for themselves.

Assignments are the primary means for directing students' activities i.e. *what* to do as opposed to *what* to know. The emphasis for such assignments is on active learning approaches.

Assignments need to indicate to students *what* to do, *how* to do it, *when* to do it by and so forth. In a curriculum of praxis, students need to learn 'how' to do these on their own. Lectures are there to provide students with mentoring, strategic advice, and resources and not to teach students how to do the assignments.

The assignments need to be *sequenced* in order to scaffold the student's learning experiences and reflective capabilities. Expert lecturers intuitively 'know' what assignments to do 'when' without elaborate planning. This is based on their experience of similar tasks and assignments as well as challenges that were experienced during this process. Insights to suitable assignments are also drawn from experience. Specific assignments also achieve particular purposes. In this course, there were eight assignments that I gave students to do. Following is a list of these assignments together with their intended purpose/reasons as explored in this section.

Table VII.4 Purpose of assignments

#	Assignment	Purpose
1	Personal Introduction	Encouraging creative writing and reflection, learn more about the students, provide students an opportunity to reflect on their own lives, create a basis for a professional CV, evaluating student's writing abilities.
2.a	**Reflection on Student Life**	Sensitising students to themselves and their own environment. Providing a foundation for reflecting on how education enforces conformity and the individual diversity of our students.
2.b	**Empirical Observation**	Provided students with a 'research' opportunity to study student life from their own perspective and write up a report on what they observed.
3	**Required reading**	I provided students with critical reading articles in order to illustrate to them how distracted we have become as a society as a

#	Assignment	Purpose
		result of modern technologies (Is goggle making us stupid), on how to conduct a literature review (Levy and Ellis, 2006), and a seed article on the research that we were going to conduct (Uys et al., 2012).
4	**Textbooks/ Technology/Tools**	The purpose of the course is for students to explore the meaning of things in relation to their lives. Textbooks are too rigid and extensive use was made of online tools and academic resources. Students were trained on using the library databases and most questions that fell outside of assignments and the course were referred to 'Google'.
5	**Tests**	Tests typically evaluate what students know. I used the tests to evaluate how students think about things, and what they are interested in.
6	**Reflective Diaries**	I encouraged students to reflect regularly and keep a reflective diary in order to develop this competency. The purpose of the reflections was fur students to learn from their actions as well as to provide me insights into their activities. It also provides for rigour in compiling their end-of-term reflection reports.
7	**Plagiarism assignment**	The purpose of this assignment was to sensitise students to what it means to plagiarise and to give them an opportunity to try their hand at defeating plagiarism detection tools.
8	**Literature Review**	The purpose of the literature review was to foster student's abilities to scope a research project and to allocate and manage tasks in teams.

Students were given significant leeway and responsibility to determine the format of the assignments. This was done by limiting the amount of guidance and referring the students to online resources for guidance. Giving them assignments to reflect gave them the opportunity for individual learning as well as in expressing their creative writing abilities.

Providing students with too much structure or too much support limits their abilities to learn for themselves. Structuring the learning as a series of assignments gives the students the responsibility to discover the structure for themselves. By including a reflective component in each assignment and encouraging the use of reflective diaries, provides the foundation for a pedagogy of praxis where the students learn to do in a conducive environment. This environment is created by the educator and directly impacts on the kind of learning that students are prepared to engage with.

VII.4 Research curriculum

The question on "how to make research fun for the students" (RQ3) emerged after a discussion with a colleague at SAU on how I innovated or designed my courses during May 2011. What I realised was that as a child I was given a lot of time and space to 'just

play'. I had one of the first 'Lego' sets in the country and loved to 'construct' all sorts of interesting things with it (these were the days before they had pre-defined sets). I also managed to take apart my big brother's cars and never really managed to put them together again…something which he still hasn't forgiven me for. So, to return to the topic…the question that I was reflecting on at the time was[96].

> This means both myself and others creating such an environment that is conducive to playing and having fun. Hence the design of the research intro would be a very important step.

The data source for making sense of these experiences was derived from the reflections of the students in year 1- 3 as represented below.

VII.4.i Experiencing the module

The first term that I analyse in this section is the term 'module' (Cycle 1). The coding of the term 'module' indicates that it comes from 'teaching' and leads to a 'learning experience' which would fit with the general view that we have of these terms.[97]

The second term (Topic) that leads from module is the 'learning experience' (Cycle 2). The frequency of occurrences of terms are learning (95/639)[98], experience (56/224)[99] and 28 co-occurrences of 'learning experience' or 'learning experiences'. This does not include the references to teaching which also includes learning. These were then coded (Cycle 3) to isolate the precedents and consequents as well as the subject that these experiences refer to. The subject of these experiences is 'research', 'the assignment', 'a survey', the 'social' that they had as well as my 'teaching'. The consequence of the 'experience' is growth, confirmation, helpful, advance, contribution as well as clash. Interestingly the precedent terms show a strong bias towards the course being practical, good, great, fun, but also challenging and scary as represented by the following quotes.

> This was a very good **experience** altogether. (C4_TZ)
> The research assignment was a great **experience**. (C3_MH)
> My **experience** through this whole research was both rewarding and a bit scary at the same time. (C1_SM)

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[96] From Reflections on Resources (Teaching) 23/6/12
[97] The consequences of 'module' are learning, experiences, abilities, question acting, research, tools, easier, understand, not for me, worked hard.
[98] Includes learn, learned, learning, learns, learnt
[99] Includes experience, experiences, experienced

It also indicates that 'research' and 'assignments' were the precedence of this '{challenging|good|great} experience. The following table highlights some of the key coded extracts of the students' learning experiences.

Table VII.5 Coded text extracts for learning experience

Seq.	Cat.	Top.	Empirical Observation of Learning Experiences	Subject
6	Q4. Experience	Learning	Another unstated duty which was needed of us was to just ***learn***. This may seem a bit absurd but if I look back to identify basic tasks which were expected of us by Mr. Uys, possibly the main theme I find was that which I have identified as a "Just ***Learn***" duty. (C2_YS) This can best be described by myself as the duty or expectation where we as students truly understand what it is like to be a student and open our minds and eyes to an opportunity of true ***learning***, this was seen through the practical applications of the project and the theory we learnt about. (C2_YS) Our ***learning*** stemmed from being pointed in a direction and being identified by Mr. Uys and then just tried to the best of our abilities to grasp the ideas and new understandings thrown at us in a way we've never had them thrown at us before. (C2_YS) After the data analysis it became apparent that he (the lecturer) was **learning** as much from the experience as we were and that he by no means had all the answers to much of our unanswered questions. (C2_TG)	Duty to Learn Duty to understand Pointed in a direction Grasp the ideas Not having all the answers
7	Q4. Experience	Experience	I **experienced** what it is like to be in a management team and run a big project. I've learnt how to write literature reviews and a synthesis, how to research, how to reference and how to take initiative. Your ways made me question, as well as realise how normal it is for me to follow whatever the lecturer says, it gave me a brand new way of thinking. (C4_CJR) We all need to learning from our ***experiences*** to avoid repeating the same things over and over again. Students need to evaluate what they have learnt in each and every module/course they do so that they can be able to see what value did that course contributed to the student education. (C4_SM)	Learn from Experience Learn to be in a team Learn to write Learn to research Learn to take initiative Learn to question Learn a new way of thinking Leant to evaluate

The final sequence for ***experience*** can be represented as follows:

research>assignment>challenging|good|great>***experience***>growth>learning

The definition that I derived from these reflections indicates that students refer to 'Experiences' as:

Personal growth and learning as a result of having a good time or avoiding bad.

This definition has interesting implications, as it directly places 'experiences' within the realm of 'moral choices, where people either seek experiences that provide pleasure or avoid those that produce pain. It also indicates a direct link to the research question of this section which is making learning fun. It also has implications for 'experiential learning' theory as it refers to theories of human motivation. The following section will outline how these experiences occurred and why they should be considered to be 'fun'.

VII.4.ii Year 1

In the first year of my teaching, I had given the students an assignment in class to structure and test a questionnaire that I had developed. The inspiration for this came from the article that Prof Ngwenyama had given us during our PhD course (Middleton and Cukier, 2006) on "Is mobile email functional or dysfunctional: Two perspectives on mobile email usage". I was interested to know how much time students actually spend on their mobile phones. In order to give the students real-world experience, I gave them an assignment to interview one random student on campus. This meant that I had approximately 57 questionnaires that were completed.

The triggering event that I needed for conceptualising the research project was to see (C2_GJ) take the initiative of interviewing three other students on campus on the smartphone questionnaire, even though I had only asked them in class to 'test' the instrument by interviewing one of their classmates.

> The plan of action that I thought of, when I conduct the interview was to find a first year student, second year student, a third year student, a Honour's and a Masters student, to find out the different experience that each one of them gave me as well as to detriment how did they find the interviewees. (C2_GJ)

The course requirements at the time specified that students needed to conduct a literature review as their exam assignment (in preparation for Honours). I suggested to one of the students (C3_TG) whom I had got close to during the class that we capture the questionnaires and analyse the data. I then asked in class if there were any other students who wanted to participate (voluntarily), but that it wasn't for marks. In the end 10 students signed up. The initial feedback that I got was that motivation was low amongst the students (there was no reason for them to do the research other than that I had asked them to volunteer). Again, after discussion with the group, the idea

took shape of doing the data analysis as part of their exam assignment. I realised that I needed to get the permission of the HoD, and after this had been given, we were all set to go. At the first formal meeting with the group, I structured the group and allocated tasks.

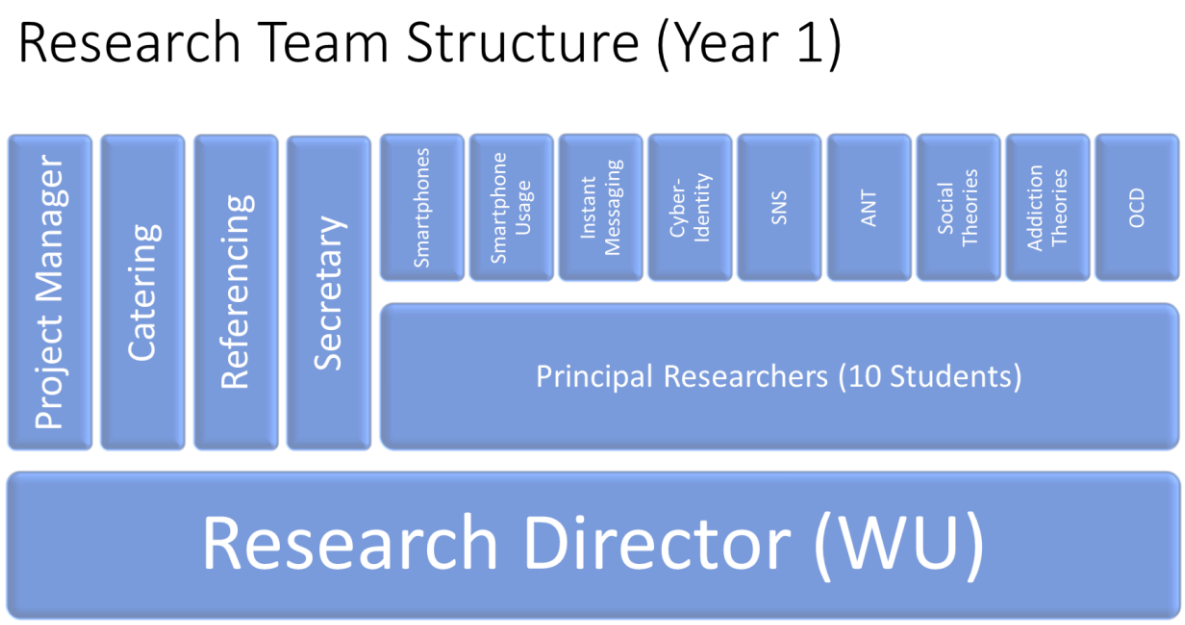

Figure VII.2 Research team structure (Year 1)

Without going into too much detail, I identified the need for a few roles, namely the project manager (C2_TG), the secretary (C2_AM) and a reference manager (C2_GJ). My idea at the time was to collate the research, analyse the data and write a conference paper which one of the students could present. I shared this idea with the team, and they were just as excited about the project. The concept that informed the approach to this project was both my exposure to Collins and Porras (1997) as well as having done a research paper in my Honours year on visionary leadership (Uys, 2006) and my industry experience in managing large projects.

> "The time has come to change our style of management from one of "control and command" to one of visioning and leading; thus re-establishing the trust and values of the people in our organisations" (Uys, 2006).

I was also inspired by one of the quotes that I had used in one of my Honours research essays.

> "If you want to build a ship, don't drum up people together to collect wood and don't assign them tasks and work, but rather teach them to long for the endless immensity of the sea" (attributed to Antoine de Saint Exupery).[100]

For St Exupery, people will be inspired to collaborate to make the dream a reality if the vision of the endless ocean is shared amongst them. In order to prime the project manager (C2_TG), I gave him a copy of the research article that I did and asked him to read it and discuss with me how best he thought we should manage the project. Following are some extracts from his report.

1. Aims of student's participation

Here are key recurring ideas that came into being when asking the team what their vision, mission and their reasons for being on the project were (in no particular order) (C2_TG).

- To gain new knowledge, to gain experience in general and for further education (honours, master's)
- The enjoyment and support of group work
- Gaining exposure in the academic community from Journal articles and conferences
- The need to accomplish something recognisable and be credited for it
- Challenging the ways in which we are conditioned and that we have been taught
- It is an opportunity that needs to be grabbed, not to be lazy
- Getting guidance from Walter who has a good academic background
- The research is quite relevant to the team as youth, it is real and has a real effect
- That from the single data document, multiple publications can be produced
- Interrogating society, defying the norm
- Passion to do this kind of research
- To learn to do proper and quality research

We realised from the start that there were a number of uncertainties in the project, and I therefore set an audacious goal for the project.

[100] See https://quoteinvestigator.com/2015/08/25/sea/. Antoine de Saint-Exupéry, 1959. Citadelle, Section: LXXV (75) Quote Page 687

> The goal we should aim at was to publish the paper as a group of 10 students and myself in a peer-reviewed academic conference that was approved by the DoE.

We also realised that an agile approach would best suit the project (Karlesky and Vander Voord, 2008), something that I have been passionate in promoting in software development at the previous company that I worked for. Agile project accepts the fact that projects change and draws on the fact that groups or organisations learn as they go along (learning organisations). Agile project management (Karlesky and Vander Voord, 2008:5) also recognises that humans are "not particularly capable at estimating how much time a given task or group of tasks requires" as is evident from numerous software development project overruns and failures to deliver the projects on time or within budget.

> Agile project management assisted in our project by allowing us to embrace change, we *unknowingy* applied concepts from agile management and its effectiveness showed through the quality of the final work product (C2_HvdS).

Regular meetings were set up along the principles of Agile Scrums in order to track feedback and progress in the project (Schwaber, 2004). This approach also was the start of establishing a specific rhythm and process of meeting with the research team (over a cup of coffee). After the n^{th} cup of coffee/meeting in my office, we also realised that we needed to someone to be responsible for catering (C2_HvdS).

> In conclusion peace of mind and acceptance of suffering will ultimately allow one to move forward. I used this in my approach to handling the refreshment station. Gaining humility and accepting my role as one of support enabled me to learn that there is more than one way of project support and one does not always have to lead from the front i.e. project leader position. (C2_HvdS)

2. *Allocation of tasks*

The principal researchers were responsible for researching the literature on topics that we allocated during the team discussions in my office. Some of these topics were for example smartphone usage constructs, mobile web usage, smartphone application usage, stationary web usage and the constructs of a smartphone itself (C2_YS), Instant messaging applications, clients and integrators (C2_TG), the concept of cyber-identity (C2_NL), social networking systems (SNS), teamwork, gratification theory and social norms of mobile devices (C2_MJ), Actor Network

Theory (ANT) and to conduct an experiment on switching her cell phone off for 24 hours (C2_MK).

> All of these tasks were great challenges because all of them I had no idea what to expect. I had no idea what to expect from this project. I had no idea of the scope of the project. I went into the project blind. However, I have learnt a lot since then. I have learnt a lot about independent thinking as the topics we researched we were never taught before and they were just "thrown" at us. (C2_MK)

> Having my phone off has been a dreadful experience but it has taught me a lot on how dependent I am on my phone and perhaps how I should try and be much less dependent. (C2_MK)

Even though the topic of 'smartphone usage amongst students at SAU' was fixed in advance, the secondary topics for research came up during discussions, so there was no way that we could know beforehand which area to research until we had discussed it amongst the group. At this point it was a combination of volunteering or assigning of tasks to individuals. For example, C2_TLT had to conduct research on social theories, smartphone usage, energy balance as well as represent the group at a seminar on mindful meditation as well as deliver a book to UCT. C2_MG looked at theories of addiction and specifically technology addiction, Self-perception, Text-Dependency and Internet Dependency as well as assisting in structuring the final document. C2_AM did not have a specific portfolio and helped with most of the other tasks as well as research researching obsessive compulsive disorder (OCD), qualitative data analysis methods and facilitating the lucky prize draw. The other activities that the team shared amongst themselves was to clean up the data, capture it and analyse and write up the research report.

3. Outcomes

At the start of this project, I had no specific investment in terms of the outcomes. I thought it would be a nice opportunity for the students to get real-world experience in writing up a conference paper format, and that they could add this experience to their CV's I considered the project extracurricular. C2_YS encapsulated it well by recognising that the main aim was to learn by doing, and not by reading about research. This *kind of learning* has a different value from book learning. These are explored in theories of authentic learning (Lombardi, 2007), situated learning (Lave and Wenger, 1991), experiential learning (Clark, Threeton and Ewing, 2010; Kolb and Kolb, 2005; Smith, 2010) and active learning (Schudel, 2012). These are

fundamentally rooted in praxis (Breunig, 2005) as a way of knowing, a concept which I only came to understand much later. Little did I realise that the project would allow the students to gain cohesion in the group as well as a sense of self.

> Considering the fact that I have encountered various problem-solving situation and acceptance towards many different aspects, I can say that it contributed to my need for **self-actualization**. Our team building activities has added to my need for self-esteem and belonging. (C2_MG)

> As I have stated throughout this course each process that I go through makes me feel that I was **enlightened**. It reminded me to be honest in my actions and truthful in my thoughts, factual with my data and with most difficulty be unbiased in my research. (C2_HvdS)

Part of the reason for this was my continuous insistence that the students take responsibility for their own learning.

> Another basic duty of the members of the group which was an underlying and unstated duty was the duty of being **independent** or **logical**. I can't explain it in words but it is what I believe to be a characteristic of the group members to take the initiative and try to understand concepts or theories on their own and not always ask for direction but find it to the best of our abilities and try to stay as close to the overall direction of the group itself in relation to our task specific duties and any other research which was asked of us. (C2_YS)

Another realisation from the team's perspective was that I was also learning from the project together with them as we went along.

> The problem with this approach was that we all thought that Walter knew what needed to be done since he has a vast academic history, but this was not the case. After the data analysis it became apparent that he was **learning** as much from the **experience** as we were and that he by no means had all the answers to much of our unanswered questions. (C2_TG)

This requires the ability of the lecturer to be vulnerable within a group of students. In the process I adopted the role of a research supervisor, more than that of a lecturer, in guiding the students to the conclusion of their project as if it was entirely theirs, even though the ideas started with me. Practically, we had a number of challenges in the project, such as inadequate office space for the students (they initially used my office and later gained access to a tutor's office, the structuring of the project, and running over time for the exam, which meant that the project extended into the holiday period. Fortunately, the conference deadline was pushed forward, so we

managed to make the deadline. The first conference that we sent the paper to rejected it as there were too many concerns. I addressed these concerns and submitted it to another conference for which it was accepted[101].

> "Certainly a first by third year students of the IS Dept" (HoD, ETEA Nomination[cxviii])

VII.4.iii Year 2

In the *second year*, having more courage than was good for me[102], I decided to see if I could replicate this case across a number of teams. As in year 1, the groups were formed voluntarily. Students could also choose to conduct individual research, which 24 students out of the class of 71 chose to do, or do research in a group. This approach gave them the perception that they had a free choice in the matter, as well as whether to participate in a group or not.

1. Individual research

The individuals who were not participating in a group then had to bring me their research topics for 'approval' by the following week. The following twenty-three students chose to do individual research on the topics that are indicated.

Table VII.6 Individual research students and topics

Student	Topic
C1_LM	Benefits of e-commerce in a developing country?
C1_LM	Computer Usage in the workplace.
C1_DS	Did not submit any report or reflection. Limited contribution to mobile phone research team.
C1_PM	E-Commerce in African Countries
C1_AP	Electronic Transactions in Africa
C1_EV	E-tolling: What is it and what is the opinion of the political parties?
C1_RT	Evolution of Malicious Software in Smartphones: Research Report
C1_KM	Evolution of Mobile Technology in South Africa
C1_FM	How can ICT be used to improve education for informal settlers?
C1_NM	How Do Smartphone impact our lives?
C1_NJ	How do the bis serve so many blackberry users across South Africa?
C1_SM	How has the use of cellular phones evolved in South Africa? – "the good, the bad and the ugly".

[101] See Uys et al. (Uys et al., 2012).
[102] See Collins and Porras (1997) on Big Hairy Audacious Goals (BHAGs)

C1_WE	How social networks using mobile phones affect students.
C1_TM	How South Africa Can Benefit from Wireless Mesh Network?
C1_MM	Impact of cell phones on learning amongst African students
C1_MM	Smartphones in Third World countries.
C1_SS	Student perspectives on mobile library services
C1_IM	The general impact of social networking on social norms.
C1_TM	The impact of mobile technology on political campaign in South Africa.
C1_TJ	The influence of mobile technology in south African education
C1_DS	The iPad vs other Tablet PC devices
C1_ND	The power of iPad and what it has given us.
C1_LM	The usage of ICT to enhance higher education: South African Context

These students had no support from any academics, although the tutors were available to them should they need assistance.

2. *Research groups*

As I realised early that I was not going to be able to supervise all the groups on my own, I enrolled the assistance of a number of academics, each to lead a team. I then discussed the project with them and identified the kinds of topics or areas that they would be comfortable to supervise. I drew up lists of the different topics and asked the students in class to choose which research topic they would want to participate in.

> All IFS 352 students had a choice on which research topic they would want to pursue. The process was to write your details on a preliminary list concerning your topic, and only 6-8 members will be chosen by Mr Uys from that list. (C3_MS)

The groups were divided as indicated in Table VII.7 and they were allocated a supervisor from the IS department or a related department that best matched the topic that they were researching.

Table VII.7 Research group topics and supervisors

Student	Std.	Topic
FB	5	Effects of mobile phone usage amongst students in South Africa
HvdS	6	Empirical observation of student life. Raising student's awareness
AH	6	E-Tolling: The bigger picture.
DF	5	Eye tracking whilst driving
LS	4	Financial impact of cell phone usage amongst students
BK	4	Gaming compulsion
WU	3	Living labs in Africa

Student	Std.	Topic
WU	6	The current media perceptions on Malema: An interpretive analysis
DF	4	The effect of change management on eKhanya
JN	4	ETeaching adoption by academics

The promise to the supervisors was that they could use the results from the research to publish jointly with the students concerned if the students agreed to it. The same offer was made to the students, but they were also told that this was not a certain outcome, and that it was up to them.

> … wanting my name on the research paper, but being part of the research team would require extra hours and a sacrifice of my holidays. This was exciting to me because I knew I was part of something bigger than just an exam assignment (C3_YH)

The structure in Year two thus looked as follows.

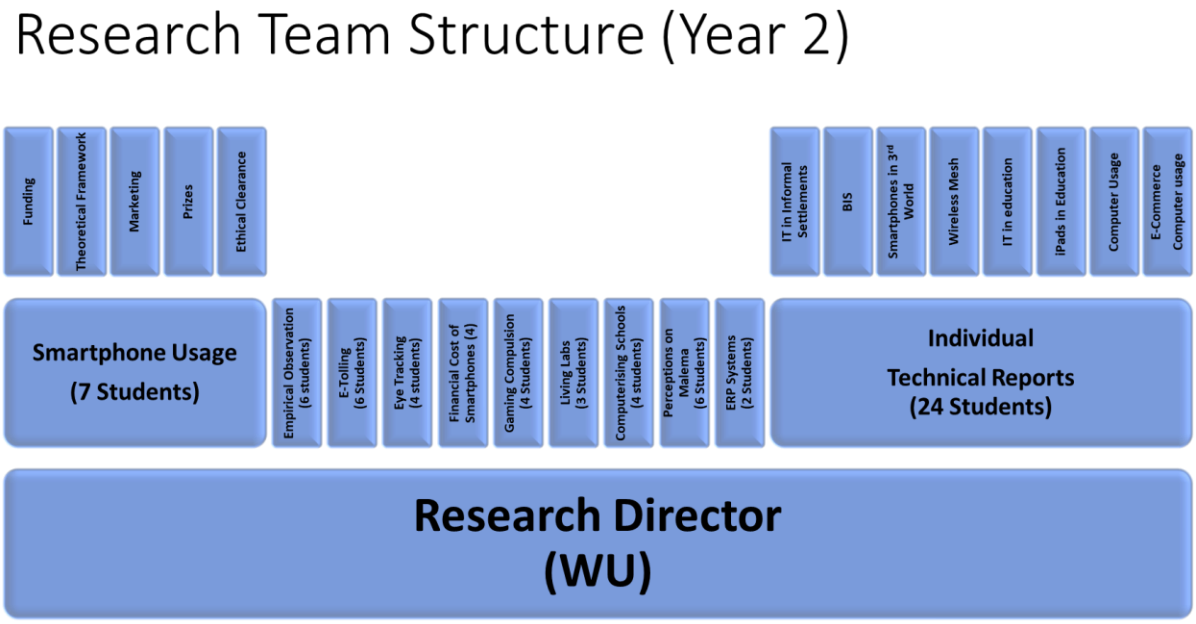

Figure VII.3 Research Teams Structure (Year 2)

Although the responsibility of the overall project and the students research rested with me, I left it up to the students to make arrangements with their supervisors, and meet with them on a regular basis in order to progress with their research. These of course include some of the fundamental principles of 'building visionary companies' Collins and Porras (Collins and Porras, 1997), that I had learned in my experience in managing consulting projects, but also forming strong foundations (structures) as an IS

enterprise architect, particularly as far as it concerns the people responsible for supervising the students.

> "Visionary company founders take an architectural approach to building their firms. They concentrate first on the organization's systems and values, then on products" (Collins and Porras, 1997 in Soundview Executive Book Summaries).

3. *Individual versus groupwork*

The following section compares the tasks that the students in this class were assigned to do, either by myself or the research manager (lecturer), or the group leader, as well as the decisions that that they undertook of their own accord, and thirdly the tasks and decisions that I made with regard to the project or on their behalf. I had chosen to focus on the "Effects of mobile phone usage among students in South Africa" group for analysis[103], as well as a selection of 21 students' exam reflections from the individual researchers[104] as a comparative group due to the large numbers of students and the volume of reflections. These will be examined in comparison between the individual groups versus the group project.

Table VII.8 Comparison of Individual and Group work

Topic/Issue	Individual	Group
Interesting topic	I wanted to research something in the line of systems or software development. I wanted research cutting edge technology, I considered the following topics; social media, software development and application development. (C1_LEM)	The topic of Mobile Phone Usage really interested, and appealed to me (C3_MS)
Work Alone/ Group	I prefer to work on my own, if given the chance. (C1_RAT)	Being a sociable person, I enjoy group work and believe it enhances social skills and interactions, as well as encourages the development of critical thinking skills. (C3_MS)
Time	I was free to use my time and work on the assignment as it suited me (C3_RAT)	The whole experience of this assignment had major Impacts on my life … This meant I would have to make sacrifices and manage my time better. (C3_MS)
Transport	I live quite far from campus and use public transport, which makes scheduling group meeting quite a difficult task for me (C1_RAT)	
Work with experienced researchers		I saw it as a chance to work with FB and gain invaluable research experience which could form the

[103] Referred to as C3_ which is the smartphone research group of six students.
[104] Referred to as C1_. Each student came up with his/her own individual topics.

Topic/Issue	Individual	Group
		basis for my future endeavours (C3_MS)
Publish at a conference		Having the prestige of getting my name in print (C3_MS)
Contribute to BOK		Wanted to contribute to the study and create new knowledge (C3_MS)

The most important difference between the individual researchers and groups, were that the individual students could choose their own topics to research. This led to the challenges of finding and selecting a topic. Secondly, they were not part of the support-structure of the groups and did not have an individual supervisor. Tutors were available for consultation, as was I. Yet the students reflected on the isolation of working individually. Thirdly, students who chose to work individually, appeared to choose so because of personal needs or circumstances. This included either their needs to work alone, or difficulties in arranging transport. Lastly, the groups were motivated with publishing their report as a conference paper. Something that was not offered to the individual researchers.

4. Teaching decisions

Initially, the group[105] was going to do an online survey of students' usage of smartphones at SAU, but we realised that it would take too long in relation to the available time for the course, to get ethical clearance and permission to conduct the research on the campus, so the assignment was changed to accommodate this.

> Unfortunately, we couldn't proceed with the survey because it was required to have ethical clearances from South African University to proceed with the online survey. This specific process would take two months before it would be approved. (C3_MS)

This then initiated a new direction for the team. This was an executive decision that I had to take on behalf of the team, as it would not have been fair for them to continue with their original assignment. As a result, I set up a sub-group to complete the ethical clearance application, one for the marketing, one for the actual survey design and one for the prizes. The new assignment for the group then became the development of the proposal which was needed to submit for Ethical clearance.

[105] The group that I selected for analysis had the task of continuing the research of the previous year on 'Smartphone application usage amongst students'

A positive outcome of the process was that both the group and I learnt the necessity of, and the procedures for gaining ethical clearance at SAU. This aspect is recognised by Elsen et al. (Elsen et al., 2009) as one of the major stumbling blocks for introducing research projects in the undergraduate curriculum. Eventually the ethical clearance was finalised in (September), which was in time for the new year's students to conduct the full-scale research.

> Another decision that required a change in direction was the prize sponsorships. Finding sponsors proved to be extremely challenging as we had to set up several meetings and make phone calls with possible sponsors and explain to them in detail what our research will entail, and how they will benefit from it. (C3_MS)

In the end I realised that the task was too difficult for third-years to manage, and I decided to step in to assist. One of the other students in the group had a baby during the first term and was on maternity leave. When she came back during the second term, I put her in touch with another lecturer who was working at Foschini, so that she could speak to them about sponsorships for the research. In the end, this also did not materialise, and we then approached SAU's research professor to assist us with a sponsorship. It was at that stage that we were told that we could apply for funding but needed to do it together with an ethics approval.

A third strategic decision that I needed to make during the course was the postponement of the final report, due to clashes with other modules. At a late stage of the project, I notified the students via WhatsApp, but some still decided to keep to the original deadlines.

> Evens though Mr Walter Uys said that we don't have to hand in our final product (completed research proposal paper) on the 8th June, my group decided that we still try and get it done by the 8th June. I was excited about this, as I couldn't wait to see the final product. (C3_MS)

I realised that this would impact on the quality of the reports, but that was a limitation that I was faced with as a result of the academic calendar and the end of exams. In the end, the students found the project as well as having to take responsibility for themselves to be quite a challenge.

> This process has been tiring, being the last deliverable I think I am quite drained at this point; I need to reboot my system. The whole process was all over the place as with Walter you never know exactly what to do. I feel that I have gained much in this process but am not possibly to fully reflect on it. Reflection takes time and needs careful thinking. (C3_CH)

In this way, most of the decisions that I had to make were decisions on the end goal or outcome, whereas students had to make numerous decisions on planning and during the experience.

VII.4.iv Year 3

In year 3, I was initially struggling on deciding who to allocate to which group, as in the previous year. During one of the classes I realised that the entire class could research the one topic, as it had been a bit much for the students the year before. So I shared the idea with the students and divided them into groups according to the key focus areas. There were also a few teams that had no other function but to research. I was interested to see if they would come up with some ideas on what to do. In the end, the project team was constituted as illustrated below.

Table VII.9 Team Structure (Year 3)

I initially met with just the core management and referencing team and discussed my strategy with them. See the minutes of the meeting below as captured by the Secretary of the group C4_LLL from Minutes of the meeting held on the 13/03/2013.

The meeting started at 11

- The following groups were at the meeting: The Management Team, The Referencing Team
- WU asked the team members what were their goals for this assignment
  We started the meeting off with CH and YH telling us about their experiences from the assignment last year and just being a leader of a group of people.

- WU suggested we get t-shirts for this assignment, SP said she knew somebody that could do the logo.
- LLL was then nominated to be secretary and then accepted role.
- WU spoke about the flyers that need to be handed out.
- RM, SP and MP left at 12 for class and to write a test.
- We then spoke about different topics each group can do a review on.

  CR suggested we look at "mobile phones used in classrooms"

  It was then decided that group 4 will do this, the leader is SP.
- WU told us what we want to establish
  - We want to find out what students are doing on their cell phones, and why they are on it?
  - We also want to find out how this affects their marks if we get a similar result as last year.
- WU explained that all groups must have a WhatsApp group to keep in contact
- WU then said he would create Dropbox and, he would then send an invite to the leaders and the leaders will send an invite to their group members

From this meeting we decided how we were going to approach the project. We appointed a secretary (C4_LLL), a coordinator for the social events that I had planned (C4_CR), someone in charge of the prize draw and sponsorships (C4_TT), a reference manager (C4_QA) and someone responsible for the statistics/data capturing (C4_RM). I had already selected the managers for each group based on their marks that I gave them for the first individual reflection assignment. The research manager (C4_MH) was given the role as he had the highest mark (76%) in the assignment. At the time of making I was impressed with his level of maturity and ability to reflect critically. Although his marks for the previous year were average (in the 60s) I was more interested in him to lead the team as he had good writing skills and showed a high level of independence. In the end, this was an inspired choice, as C4_MH made the project happen.

1. The teaching moment

The defining moment for this class, when the students stopped being students and the lecturer a lecturer, was in the second last class of the semester. The plan was to conduct the survey on that day, but a number of things had to be in place for this to happen as planned.

For the survey to happen, the students needed a survey/questionnaire. So, in reverse order, they needed to compile the questions, research the literature on what questions to ask, how to ask them etc., identify an appropriate theoretical framework, do the research design and methodology, conduct a literature review on the topic, formulate research questions, gain ethical clearance, do the research proposal, identify the research problem. The topic was of course the one that I had started in year 1. "Smartphone usage of students at a South African University". The first-year students researched the basic constructs of usage, the psychological aspects as well as the basic questionnaire. In year two a group of students completed the research proposal, got ethical clearance from the university which included getting students marks and the awarding of prizes, started the process of getting sponsorships for funds and prizes, and found a framework that was closest to the element of circumstances (Maheshwaree, 2009; Verkasalo, 2010). In year three, different teams organised the prizes, did the research design, finalised the theoretical framework, did the questionnaire design, did the communications of the project to stakeholders, designed and printed posters to put up over campus, arranged an event with a DJ (which never happened), put together the literature review and methodology sections. We tested the questionnaire in class, and I printed them the day before the survey.

The two other defining moments over the course was the moment that I realised that I did not have to teach anymore, and the moment that the students realised that they needed to take responsibility for their own learning. The first moment can be explained in terms of Gagne's levels of competence. At this stage, the practitioner moves from a state of conscious competence to unconscious competence.

> "Through dialogue the teacher-of-the-students and the students-of-the-teacher cease to exist and a new term emerges: teacher-student with student-teacher. The teacher is no longer merely the one-who-teaches, but one who is himself taught in dialogue with the students, who in their turn, while being taught, also teach" (Freire, 1970a:53).

I have already outlined the first moment in my teaching approach. Here is the story around the second moment of how the students took the initiative. One of the earlier ones was where the management team allocated research topics to the students and assigned them tasks…all on their own without me telling them to do so. Not to

detract from the poignancy of the moment, I'm leaving it in the words of MH, someone who at the beginning of the class acknowledged that.

> A few days after sending out the topics for the literature review, I was studying for my accounting term test 2 in the library and was under a lot of stress because I barely passed the first test. My phone began to vibrate with questions from the group leaders within the WhatsApp Leaders Group, I replied to a few, after a while it got much, I then ignored future messages and carried on studying. I left for the IFS 361 class, upon approaching the entrance of the lecture hall, I was confronted with a number of group leaders and questioned to the extent of interrogation as to the reason why I have not replied, with the frustration and irritation I irrationally commented that I was receiving "stupid questions". After realizing and pondering over the lecture, I had realised that I had made a mistake. Upon completion of the lecture, I went to apologize to the group leader, she responded by saying "I have not responded to your comment earlier as I did not want to drop my level of intelligence to yours". I was calm at that stage and replied by saying "fair enough" and smiled.

I realized that the whole class was in chaos and the project was at stake. On that afternoon, while I was travelling, I realized that I had to do something as the leader to bring everyone back on board. I planned a short speech to them apologizing and summing up all that was required to get them to the point of realizing the objective of this approach of learning and doing things by yourself. Figure VII.5 below will depict key points noted for my talk with leaders.

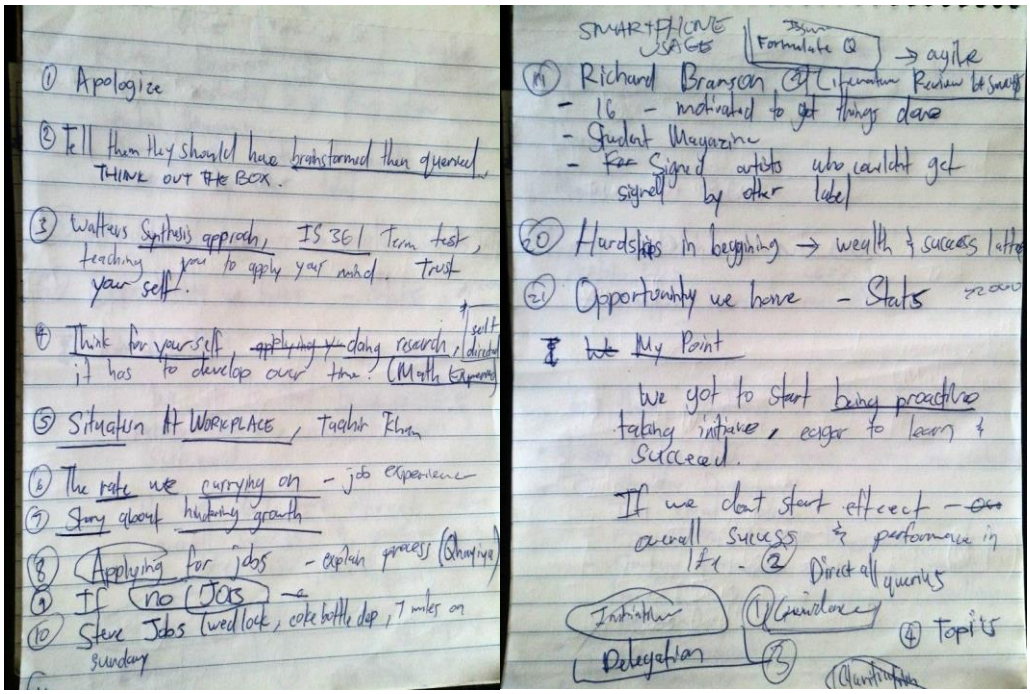

Figure VII.4 MH taking initiative to urge students to take initiative

After my having a talk with the leaders, I initiated a discussion panel, by letting each leader pose problems faced with the task and issues with the management team, and we controllably answered each one at a time, with many questions

other leaders have opted to answer them. With some conflict and argument came ease at the end. Many leaders commented that it was the most productive and successful meeting that we had. The meeting was held on the Wednesday, and we normally have a 3-hour class on Thursday, although the lecturer was not going to be attending class, hence we decided to have 1 hour of class with the purpose of finalizing tasks regarding the research project.

I was under the impression that we would get a low turnout to class. To my surprise upon entering at around 11, the class was almost full to capacity. Most were working in their groups, some who have been there since 8H30 in the morning. I was overwhelmed, I went to each group too query their progress or help them address any issues. Later during the session, when mentioning new tasks, surprisingly groups nominated themselves for tasks. It was an amazing experience, because usually we had to delegate tasks; which I am not much in favour of. Since then, there was greater group chemistry, collaboration and effectiveness.

This was one of the great experiences I encountered as a group leader, it was a challenge that at first, I thought "how" am I going to get through this, but in the end everything worked out with some determination and initiative.

The result is, that as long as the curriculum is driven by the lecturer, and the tasks and actions, the students will be developed to become good rule followers. In order for the student to take the initiative …certain habits and character need to be developed.

The third and ultimate defining moment was the day that the survey came together.

2. Group Exam Assignment Contribution

Again, I am going to indulge in the luxury of letting MH speak on behalf of the class. I will make sense of the experience after his story.

The day of the survey was an eventful and gratifying experience for all Information Systems 352 students. The planning for the survey event day was a meticulous process carried out the day before by members of the management team. We met as a group and took a look at a map of the entire University, we plotted each group at a different location covering the entire University with careful consideration to the amount of traffic of students in the particular areas and planned accordingly. On the day of the survey, Thursday 09th of May to be exact, the management team got to campus earlier than usual at around 07H30 AM to plan and organize activities for the day ahead. The posters, pamphlets and surveys were collected from the EMS building and taken to the Cassinga Lab where our classes are held.

There was a great sense of excitement and an energising atmosphere upon entering the class with all of the team members. Most of the students were dressed with their yellow t-shirts looking unified and united as a whole (Figure A). A few members of the management team together with the assistance of the application team sorted and organized the hand outs for each group, while others were organizing the incentives for the survey participants, and other members of the management team were planning the locations and areas on where to put up the posters.

Our lecturer had a meeting with all of the group leaders in preparing us for the day ahead and making sure that there was no misunderstanding to any question in the survey to anyone. Everyone was with their teams discussing the event and each group did a final pilot survey. Cool drink was made available to all and was sponsored by Coca Cola as displayed below in Figure A. After all team members receiving their hand outs and everyone being satisfied, we met outside as an entire class and had a class photo taken.

Figure A (Overview of Preparation)

All members dispersed to their respected locations and a member of the management team was appointed to a number of teams to make sure that all teams are carrying out the task as planned and making sure that all teams reported to their correct locations. Within a short duration of time, the entire campus was covered with IS 352 students, easily spottable with bright yellow T-shirts.

All management team members had to report the presence of groups to the project leader. The WhatsApp Group Chat was one of the main tools used to facilitate communication amongst team members and enabled us to address issues and problems that had arose. We enjoyed handing out the surveys, and initially we were concerned that we might not get a high level of participation from our fellow SAU students although it was surprising to note the willingness to participate and the level of involvement and co-operation from the students. We had informed the teams to capture photos of the students filling in the surveys and upload it to the Facebook page.

Within a few hours most of the students had completed their allocated quota of 20 surveys and many had made contact with our team in order to acquire additional surveys. The project leader contacted Walter and made arrangements to have more surveys printed. This also had come as a surprise to the group as a

whole as we initially planned two days for the surveys and within a few hours most members were completed if not all. The project leader after completing his allocated surveys, went around the entire campus to all the groups with the purpose of capturing photos and ensuring group co-operation and efficiency.

Overall, all members of the MTESA project had a great day and a wonderful experience. There was a great amount of enthusiasm and co-operation from team members as well as fellow SAU students that participated in the survey completion. This is also proven from the group chat amongst team leaders stating their positive experiences of the day which is displayed in Figure B below. Students filled out surveys all over on campus under all settings eliminating all obstacles, whether chilling in the cafeteria, eating Asian at A Block, having coffee at Nompumelelo's, relaxing in the garden to studying in the library as in indicated in Figure C below. Most of the team members were astounded by the fact that we actually met the deadline and got to complete our surveys. It is amazing that we did not only achieve our goal but we surpassed it by completing 2007 surveys. This was a great tool of motivation for each and every member of our team. (C4_MH)

3. The survey experience

The day of the survey was the defining moment when everything fell into place and everyone was acting 'on the spur of the moment' so to speak. All notions of being a student or studying for a course had fallen away. All notions of me being the lecturer fell away. We were all a team (an ad-hocracy)[106] constituted for the purpose of learning how to research.

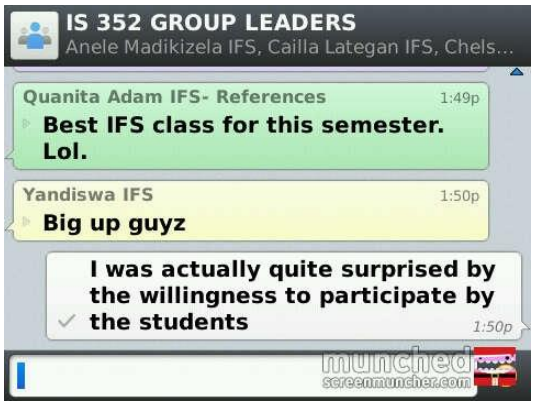

Figure VII.5 Research Team WhatsApp Feedback

Everyone had a role to play, much like an orchestra with various instruments. I was the conductor of this class, but in order to conduct them, I had to know what tune to

[106] Adhocracy: "a temporary organization or committee set up to accomplish a specific task" (Adhocracy in M-W, 2017)

play and how to get all the students to play together. The moment we started making music together, we became as one sound…referred to as a concert or 'being in concert' or 'being in unison' or 'singing off the same page'. This is where we formed (or conformed or cohered) to the rules of the group, even though there weren't any explicit rules.

I offer an explanation of the survey moment in two ways. Firstly from a contemporary perspective, this can be defined as flow, and in particular, a group flowing together (Csikszentmihalyi, 1990). I quote from "Creativity: Flow and the Psychology of Discovery and invention (Csikszentmihalyi, 1996).

"The flow experience has the following building blocks":

- "There are clear goals every step of the way";
- "There is immediate feedback to one's actions";
- "There is a balance between challenges and skills";
- "Action and awareness are merged";
- "Distractions are excluded from consciousness";
- "There is no worry of failure";
- "Self-consciousness disappears";
- "The sense of time becomes distorted";
- "The activity becomes autotelic".

Flow is a necessary component of all creativity and innovation. The other is of course hard work. Together these give us the freedom to explore what is possible, and the discipline to accomplish it.

> "Teachers are not the sole source of knowledge but can also learn from the knowledge and experience of the learner- they are partners in the learning activities" (Saddington, 2000).

From an Aristotelian perspective, I would offer that this teaching moment is what he meant with his pedagogy of *Mousikē* or *Mousikē* Paidiea[107]. During Aristotle's times the notion of *mousikē* was referred to as *'chorus paideusis'* or *'enkyklios paideia'* (De Rijk in Bos, 1989:194). This term can be traced back to the Pythagoreans as a term

[107] Aristotle outlines his system of education in mousikē, which he describes as *"elevated and worthy of free men"* in Book VIII Chapter 3 (1338a13-1338b8) and Chapter 5 (1339a11-1340b19) as well as the final Chapter 7 of the treatise, on the melodies and modes of education (1341b19-1342b34).

meaning *'circular', 'round', 'in a chorus',* or *'in a circuit'*. So I would suggest this is where the term 'course' came from. The Latin equivalent term for 'chorus paideusis' is *'artes liberales'* or in English 'liberal arts'. This refers to an 'all-encompassing education' or 'liberal education'. This term should, however, not be confused with the modern notion of *'liberal arts'* education, as *mousikē* is strictly directed towards a 'free (liberated) man's soul education' and not towards practical affairs such as the performing arts. In the words of Bos (1989),

> In our view the frequent connection of the 'enkyklios paideia' with such terms as choros, choreia, and mousikē, in particular in Philo of Alexandria, can be seen as resulting from the fact that the 'enkyklios paideia' is part of the soul's 'education', or 'up-bringing', and from the connection of this process with the themes of Plato's philosophical myth in Phaedrus: education aims at bringing about the ascent of the soul. (Bos, 1989:196).

As Bos (1989:197) claims, Aristotle intended man first to learn what is 'necessary' [anankaia] in primary education, and after that the liberal arts or the 'the arts directed at the good life' (mousikē) (Met, 982b22). It is also clear that this form of knowledge does not aim at profit and are thus suitable (only) for a free man (Met, 982b25-28).

For Aristotle, there is a higher form of 'orchestrating' intelligence that directs this form of activity. This form (mousikē) is a higher[108] 'intelligence' than knowledge, intuition and even the virtues (EE, 1246b8-10)[cxix]. This part is not 'rational' or 'calculable' yet allows man to 'accidently' act virtuously (prudently). For Aristotle, this 'cause' of prudent action appears to us as chance (or by accident) due to it being incalculable to human reasoning (EE, 1247b5-8)[cxx]. This form of reasoning must therefore be a 'higher' form of reasoning than knowledge and intellect (1248a10-12); which Aristotle ascribes to the non-moving mover (EE, 1248a24-30)[cxxi].

> "If, then, some have a fortunate natural endowment - as musical (οἱ ᾠδικοὶ) people, though they have not learned to sing (ᾄσονται), are fortunately endowed in this way and move without reason (non-rationally) in the direction (ἡ ἡ φύσις) given them by their nature, and desire that which they ought at the time and in the manner they ought, such men are successful, even if they are foolish and irrational, just as the others will sing well though not able to teach singing. And such men are fortunate, namely those who generally succeed without the aid of reason" (EE, 1247b22-25).

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[108] Or earlier/prior which in Aristotle's works are the same thing as higher.

It is here where the concept musical (οἱ ᾠδικοί) stands out, as a form of natural inspiration (being non-rational), and not as translators interpret in the politics as musical people. By means of further explanation, the word 'sing' as used here, is translated from the Greek word mélos which can be interpreted either as 'song' or 'limb, member' or part of (a whole). It is in the latter sense (part of a whole or a chorus) that I use it here, rather than the more traditional sense of singing and choirs. Our roles as educators is thus to set the stage and get everyone to 'sing together'. That alone provides the basis for immense learning experiences.

> This above mind-set of Mr. Uys also influenced his teaching (or rather learning) philosophy. Through a critical pedagogical approach, he has assisted students to develop their imagination, abilities and self-image, as well as to broaden their knowledge in becoming the leaders of tomorrow. In particular he made extensive use of the reflective approach and constant feedback (HoD, ETEA 2012).

It is my experience that trying to 'form' students into shapes which they are not i.e. putting them into boxes, is not the way to build a society of innovators and entrepreneurs. As this event has shown, getting students to all work together in achieving the same goal (in this case something as simple as surveying 2000 students), getting them to 'sing off the same sheet', and then letting them get on with the task may be one of the most important lesson that I have learned from the experience.

> "Most learning is not the result of instruction. It is rather the result of unhampered participation in a meaningful setting" (Illich, 1971:44).

In the final stage of such a process, the lecturer becomes part of the group and learns together with the students (all teaching ceases) and everyone is acting together for a common purpose.

VII.4.v Summary of research curriculum

In this section, I provide a review of the 'learning experiences' of the students over the three years, and how the design of the research curriculum developed over this period. Each year indicates a growth in my own development as a teacher, and my abilities to implement a curriculum of praxis. The idea for making learning 'fun' was triggered by my 'happy childhood' memories and was initiated when one of the students took the

initiative to 'interview' a number of students using the smartphone questionnaire that we developed in class, instead of only the one that they were assigned to do.

An analysis of the term 'learning experience' from the student's reflections define it as "Personal growth and learning as a result of having a good time or avoiding bad". This indicates the central role that these experiences have in the sphere of 'moral virtue' i.e. the seeking of pleasure and the avoidance of pain. It also indicates the importance of 'having fun' in the classroom as opposed to 'doing work'. Lastly, this finding has implications for behavioural theories in education.

The research project started out in Year 1, just with one team doing a survey on smartphone usage amongst students at SAU. The initial ideas on how to structure the team, allocation of tasks and responsibilities, and meetings and 'agile' approach was developed there. Also, permission was obtained to replace the students' exam project with the group research project. Initially the project started as 'just having fun', but quickly developed into a 'serious' project for the students from which they wanted to gain real research experience and publish an article, which was eventually achieved.

In year 2, I decided to replicate the experiences of the one group across a number of groups. Students were also given the option of doing individual research, an option which 23 individuals took. The main difference between the individual research and groupwork was that the individual students had to choose their own topic and did not have the same support structures that the groups had. The groups each had a supervisor that assisted them in their research design and topic formulation. The groups were responsible for the entire research process, and in the process we met with some challenges. These were primarily related to gaining ethical clearances for each group, research funding, and lack of sufficient time during the semester to complete the research project.

In Year 3, I allocated one research project to the entire class, and broke down the tasks and activities into teams and roles. In this year, we also introduced 'Management meetings', where the leaders and secretaries of each group met as a larger group. The goal of this project was to conduct a survey of more than 200 students at SAU on smartphone usage. The entire course was structured around the preliminaries of the research process, including doing literature reviews, developing the theoretical framework, training on using the library databases and writing skills. Two defining moments in this course was when students took the initiative for allocating project

tasks and when everything came together in the final survey. These experiences can be described as a "flow" experience, where all the students and lecturer acted in unison in the class.

This concludes the section on the student's learning experience and how they learned by doing a real-world research project, and in the process how they taught themselves to learn.

VII.5 Chapter summary

This chapter concludes the empirical research on how I conceptualised the research curriculum. In this chapter I presented detailed support[109] for answering three of the research questions which I started out with namely:

Table VII.10Summary of research questions and propositions

Section	Research Question	Major Propositions
1. Introduction		
2. Designing the course	RQ0: How does one learn to teach?	By teaching.
3. The assignments	RQ4: How do I teach students to do research on their own?	By giving them assignments to do.
4. The learning experience	RQ3: How to make research fun?	By doing 'real' research.

In Section 2, I outlined how I designed the course as part of the process of learning how to teach students to do research. In this design I departed from the PBO approach by dispensing with the course outline (map or program) and exploring the possibilities together with my students through their eyes.

In Section 3, I outlined the assignments around which I structured my teaching. In a praxis curriculum, assignments are the primary means to direct action and reflections. Assignments need to include both action and reflection, and students' reflective capabilities need to be developed throughout the course. Assignments need to be sequenced to provide scaffolding of learning and students be given sufficient time for completing the assignments as well as the associated reflections. Limiting the amount of guidance in the assignments provide students with greater freedom in how

[109] In order to aid in the readability of this voluminous chapter, I have included summaries at the end of each section for the reader to refer to.

they do the assignments. Providing students with too much structure is inclined to limit their self-directing capabilities.

In Section 4, I present how I conceptualised the research curriculum in praxis and outline the student's experiences over the three years. Each year indicates a growth in my own development as a teacher, and my abilities to implement a curriculum of praxis. Year 1 started the process through the simple initiative of one student taking a questionnaire that we had developed in class and interviewing three people. This formed the basis of an idea of collecting more data and analysing the results by the students instead of their exam assignment. We formed a group of 10 students to continue with this survey. The rest of the class (48 students) did an individual literature review. In year two, we formed ten research groups and had 23 students doing individual research. Each group had a supervisor that assisted them in formulating their research. Challenges were in gaining ethical clearances, research funding and sufficient time for the research project during one semester. In year 3, the entire class researched one topic. The class was divided into twenty groups of five students each. The students held regular management meetings, and the entire course was structured to achieve the aim of surveying more than 2000 students on their use of mobile apps at SAU. The highlight of this course was when students took the initiative to manage and action the tasks themselves, without my input as their lecturer.

VII.5.i Conclusion

Conceptualising a research curriculum, where students are developed as independent, self-directed learners is extremely challenging. The next chapter explores this process of how I taught the course, as well as how students learned as a result of such a curriculum.

“Neque porro quisquam est, qui dolorem ipsum quia dolor sit amet, consectetur, adipisci velit, sed quia non numquam eius modi tempora incidunt ut labore et dolore magnam aliquam quaerat voluptatem.” (Cicero, De Finibus, Bk1, Sec32–33).

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“Nor is there anyone who loves or pursues or desires to obtain pain of itself, because it is pain, but occasionally circumstances occur in which toil and pain can procure him some great pleasure.” (Cicero, De Finibus, Bk1, Sec32–33).

Chapter VIII How I taught the course

> "Our *survey* from the *point of view* of consequences lies in two directions, for there are prior consequences and later consequences…the later consequence is the better to consider. e. g. if a man learns, it follows that (earlier) he was ignorant before and (later) knows afterwards" (Aristotle, Topics, 117a11-15)

HOW I taught the course outlines my personal journey of discovery in learning how to teach students on how to do research, be self-directed and critically reflective. In the process I learned how to do research, be self-directed and becoming a critically reflective practitioner.

VIII.1 Introduction

In this chapter I explore my further research questions by using the results from the analysis procedure as applied to the element of 'How', as well as from insights on 'How' I conceptualised the curriculum in the previous chapter. In order to gain insight into these questions, I examined the reflections of the students over the period of three years based on the analysis procedure as indicated in the methodology chapter. Not only did I examine their reflections as part of the analysis, but I read their reflections throughout the duration of the course in detail at the time in order to understand where they're at and what I should be doing in class. In the process it also gave them a 'voice' and allowed me to 'listen' to them.

The first research question that I explore in section 2, is also the last question that I reflected on whilst teaching the course namely, (RQ6) "What does it mean to teach?" (March 2013). As this is a question of praxis, it is a reflexive question and refers specifically to what does it mean (for me) to teach or alternatively "*how* I taught the course?" and "the meaning of this approach" or "Why".

In section 3, I explore possible explanations to my fourth research question (RQ4) on "How to teach students to teach themselves". In section 4, I explore my second research questions of "How to teach students to be critically reflective". In section 5, I explore my first research question (RQ1) on "How to get students to participate in class".

The writing style that I use to represent my teaching in this chapter alternates between my teaching actions and examining the students' reflections/responses to this, based on the key topic, issue or term. This makes for complex reading. I have therefore emboldened the key term of analysis in each section, as well as provided suitable headings along the way in order to signpost the progression of analysis. Student reflections are block quoted with the case number and initials in brackets. My own reflections are bold block quoted with no initials.

This is also a lengthy chapter due to the volume of data and the number of research questions that I explore. For this, I apologise to the reader in advance and suggest that this chapter be read over a number of sessions according to the research questions. I will be providing a summary at the end of each section as well as an overall conclusion at the end of the chapter.

VIII.2 My teaching approach

This section essentially explores my sixth research question (RQ6) on how I taught the course, through analysing the student's reflections in terms of 'How' and the relative (related) terms of 'teaching' and its synonyms. The three primary ways in which students referred to my teaching were by using the words 'teaching' (129), 'teach' (157) and 'taught' (166) synonymously[110]. Students also used the terms 'lecturing' (10), 'lectured' (5) and 'lecture' (122). In this case, teaching and taught are coded separately, although there are overlaps, as the way the students used 'taught' refers directly to what they learned i.e. what happened to them, whereas 'teach' refers to what I did in the process.

> Thus, to suggest that the way in which we are **taught** shapes us into a forged human being which we are not. Our true nature is shown in what we **learn** on our own. (C4_KM)

> I quite enjoy this form of **teaching**, (it) takes the boring elements away of sitting in class and listening to some dinosaur read a PowerPoint presentation. (C3_CH)

[110] The primary terms are indicated in bold and the frequency of their occurrence in the context of 'How' is indicated in brackets.

The verb 'teaching' refers to an action and belongs more appropriately to the element 'What'. The adverb 'approach,' however, defines the 'How' of teaching[111]. Students used a number of terms synonymously for the 'How' of teaching namely the teaching 'approach' (21), 'teaching method' or 'methods' (20), 'teaching style' (25), the 'way' I taught (5) my teaching 'technique' (3) the lecturer teaching (35) or teaching the module (32) or how I 'conducted' the class (1) or the 'kind' of teaching (1). Following is an example from one of the student's reflections on my teaching approach.

> How did lecturer **teach** the module? Walter is just another character which I think for the period that we worked with him we cannot define who is he. His teaching **method** I never had it before. He just uses a technique that I cannot even know what is it. The task that are given has no length and sometimes with not even a structure. We had to figure out everything on our own. The module had no course outline that alone was surprising (C4_MM).

The term 'teaching approach' refers to the way that the course was structured, the material that was presented in class, prescribed textbooks and also the kinds of discussion that we had in class. *Teaching* in this case referred to the 'in-class' interactions between the lecturer and students and not in the traditional sense of 'lecturing' or didactics.

> This **approach** was holistic and broader in that it covered the academic, the social, the emotional and the mental (cognisant) aspect of teaching to the students. (C4_NM)

> I found this **kind** of teaching an interesting type of lecturing. During the lecture we used to discuss the challenges that we will be faced when looking out for jobs in the market. The issues discussed during the lecture beside the research project were all relevant to our daily lives. However, in most the time it was very frustrating to doing some assignments as we had to find out what everything by ourselves (C4_MM).

Students at SAU had become accustomed to the traditional "talk and chalk" way of teaching, in modern terms referred to as "death by PowerPoint", or the 'banking' approach where students needed to memorise their work as the following quotes illustrate:

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[111] See "Teaching For Quality Learning At University" and "Perspectives on thinking, learning, and cognitive styles" (Biggs and Tang, 2011:27; Sternberg and Zhang, 2011) for a more in-depth discussion on the difference between learning approach and learning styles.

> I have learnt that there is no one way to **learn** during a semester, a lecturer does not have to use presentations and slides to **teach** followed by the students learning all those slides in verbatim to try and regurgitate them in the exams, rather learning can also be about us (the students) engaging each other's thoughts and experiences (C4_LD).

> Another thing and a very important one that I have learnt is the new way of learning; I was exposed to another **teaching** and **learning method**. I was used to lecture notes methods whereby I had to read and even memorise them in order to pass the module. All that had to change as I had to make means on my own as to how to get more enough information and understanding of the material taught in class (independency) (C4_SM).

VIII.2.i Freedom to learn

In my class, topics ranged broadly and consisted mainly of discussions between myself and the students about life in general. This freedom to explore topics outside the discipline and discuss current events showed students the freedom and fun that one can have in learning, an approach which they referred to as 'free-styled'.

> I say this because I loved that this module was so different and that a lot of it was **free styled**. I liked that the lessons learnt in class was not out of a book, but reality and an eye opener (C4_CK).

> Compared to other modules, this course is very different. It's very **free flowing**, as there is no course outline (C4_CJR).

> Things such as getting to know who you really are and what you really want before paying R20 000 for the year and forcing yourself to see how well you can remember a hundred definitions. Trying to force yourself to fit in to society, to be accepted, and adored because of your achievement based on someone else's measurements and go ahead (C4_CK).

This 'free-styled' approach also encouraged the students to think "outside the box" and to express their freedom in the classroom and beyond.

> Walter projected a **stress-free** attitude and encouraged us to live with no regrets and limitations. There were no such things as problems to him. He encouraged us to take initiative, *be self-directed*, **think freely** and be innovative and creative (C4_MH).

> Our lecturer is one of the most understanding and fun lecturers I have been taught by during my degree, he was very **free spirited** and encouraged **free thinking** in class, he understood his students and had our best interests at heart, even in his teaching method he made us interested in what he had to say and made the cell phone study time a fun experience for us all. (C4_EAT)

I did not start out with this free-spirited style, however. In the beginning I was a lot more formal with the students and had prepared a number of presentations with which to bore my students. Part of the reason why I used this new approach was the informal (bordering on casual) approach that was introduced to me by Prof. Ngwenyama's visit to my class and which I built on. This casual/informal approach is indicated in the following quote by KM.

> The only reason why I learnt all this stuff I am discussing is because of the **casual** nature of the module, if it was just as **formal** as all the other lectures then it will not have stood up to make the difference which it has made in my life, thus to suggest that the way in which we are taught shapes us into a forged human being which we are not. Our true nature is shown in what we learn on our own (C4_KM).

> The way Walter **taught** the class was not conventional to say the least, he had a very **relaxed** approach to the class and this in turn **relaxed** me, at times I did feel like he had nothing planned for the day and ended up going on and on about really pointless subjects. I understand he was **teaching** us to question but sometimes he dragged a topic for too long and lost my attention along the way (C4_LLL).

From these student's reflections, one can observe that my casual approach stimulated their learning. I also tried to be as flexible in my approach as possible, and when I realised that the students were having challenges such as high workloads or clashes with other tests or exams, I would make adjustments to their assignments accordingly.

> This module has also been very **flexible**. On more than one occasion, due dates have been changed, class ended early to accommodate students who were writing tests or had requests, etc. (C4_CK).

Unfortunately, this came across to some of them as if I were trying to accommodate the students all the time. As these notices were posted on the ETeaching platform, it resulted in my HoD questioning me about teaching the students bad habits in terms of not submitting their assignments on time.

The terms that particularly describe the way that I taught this course are *relaxed* (33), *unique* (33), *casual* (12), *informal* (13) and *unconventional* (3). It is therefore suggested that the amount of 'formality' and 'casualness' for the course or even specific lectures needs to be gauged by the lecturer in the context of the institution and the norms and standards that are either written or tacit that exist there, i.e. an approach

that may work at a city university may not work at an 'Ivy League' university. My casual approach was expressed in various ways in the classroom, including playing music in class, watching movies, playing YouTube clips to illustrate a point or even drinking coffee in class.

> He isn't the **formal** lecturer who will stand behind his/her desk until the period is over; he walks around in his Harley Davison shirt and cup of coffee in his hand whilst engaging with his students. He lets you be who you want to be: you! There are no similarities whatsoever to how Walter teaches and how other lecturers teach their modules. It's all totally different (C4_KK).

VIII.2.ii Unstructured

From my experience and the students' reflections, however, there appears to be a tendency to consider 'higher' education as a serious (decorous) affair and that one may gain some benefits, especially in an African context to relax one's approach to teaching; keeping in mind, however, that this does not degenerate into teaching that is unsuitable for either the students or the institution. Some students highlighted that it sometimes got too relaxed in class and that this style did not work for them at all.

> I did not like it and it did not work for me. I am someone that likes **structure**, even if it lets me feel as if I am in a prison. With **structure** I know what to do and when (C4_TLT).

It is recognised that learning can sometimes be painful (Millar and Saddington, 1993), yet in this case, the student isolated the fact that she required more structure, yet did not reflect further than that by insisting on being told what to do and when that she is in effect still being controlled by society. Students responded differently to this 'apparent' lack of structure. Meanwhile they are essentially only reflecting their own understanding of the world around them.

> I was able to handle the **approach** of not having any **structure** because I enjoy being able to work the way I feel best, but the more stressful things got the more structure I needed and less confusion I needed. Many other students were unable to handle this because they were too used being told what to do at all times (C4_STS).

The way that I sensitised students to how they were being moulded by others was to point out the fundamental differences between my course and the others that they were attending.

> That is when I had my own realisation. The realisation being that the teaching approach was not only academically centred such as the other **approaches** I was exposed to. No. This **approach** was holistic and broader in that it covered the academic, the social, the emotional and the mental (cognisant) aspect of teaching to the students. We were able to explore all of these aspects in each lesson and engage in a meaningful way – which in turn helped us with our (own) research methodologies (C4_NM).

I tried to keep the topics of discussions to philosophical issues, as this was a class in Research Methods and Philosophy, and would also discuss personal issues such as individuality, race, gender, religion and any other topic that might come up for discussion. This is in keeping with the radicalist philosophy of education, where it is the educator's role to encourage students to critically reflect on their own circumstances and on how these have constrained their thinking and ability to act freely (Saddington, 2000).

> "The focus of education is on bringing about a new social order by changing the **structures** of society and **liberating** the individual from a false consciousness which is unaware of the structural and historical forces which have domesticated her/him. Reflective thought and action (praxis) are seen to be dialectically related" (Saddington, 2000).

The problem is twofold, as Freire (1985) recognises. The very act of teaching in institutions that have been part of the hegemony may confuse the students i.e. you are saying that education controls our thinking, yet you are teaching us in the same system. This required me constantly to alert the students to the fact that they should also not dogmatically believe me but find things out for themselves.

VIII.2.iii Thought provoking

This was another way for me to tell students to take responsibility for their own learning. The second, more insidious aspect of having such **free-spirited discussions** in class, is that these kinds of approaches stand in stark contrast to the 'traditional approaches.

> What I enjoyed the most about IFS 352 is the teaching **style** of the lecturer. I liked that the **style** was very casual and relaxed, but very interesting, challenging and *thought provoking*. I also liked the relationship that he had with his students. I liked that the relationship was more personal than that of other lecturers who alienated us more than anything (C4_CK).

Now unless the faculty is Philosophy, this kind of questioning does not accord well with other academics or staff. I am aware that students would discuss some of their concerns with friends or even other academics or administrators, and unless these staff are informed about the reasoning behind such discussions, there is a risk that they might judge or even condemn such practices. In saying that, I was always careful not to isolate any particular race, religion, culture or beliefs and freely listened to the ideas that students had, even if they were in direct contradiction to mine.

> These diverse, yet informal classes where everyone could give their opinion and work really hard definitely worked for me. I really wish they could implement this **style** of teaching in more courses as it is really effective. I will really miss this module dearly, it is definitely that one module I really put my all into and I thoroughly enjoyed (C4_SKP).

Like novice lecturers model their teaching styles on lecturers who have had a significant influence on them, the same goes for students who "attune themselves" with my approach.

> You taught the module in a way I never experienced before from a lecturer. You ensure there is a good relationship amongst you and the class. It's always good to have a good relationship with all your students. As a tutor, I see a great difference in attitude and work ethic from students when you know their name and when you do not. I have learnt lessons from you and applied them to my own teaching **approach** (C4_CJR).

The challenge, again, is that, unless the student is sensitised to why I would do certain things in class, he/she would just adopt these practices blindly, with possibly disastrous consequences. As a simple example, lecturers who don't have a lesson plan or the necessary PowerPoint presentations or even a textbook would be strongly questioned in most traditional academic institutions. Fortunately, I had the support and blessing of my HoD at the time, although this was to change when he left the institution. Fundamentally, however, I took the students' side in most matters, and was seen as a champion of their own struggles to make sense of their world.

VIII.2.iv Setting high expectations

One of the things that did stand out for me was the high expectations that I had of the students. As one of my reflections at the time[112] illustrates.

> For me the practice is not what Elsje says "Do what you do, do well boy"
> BUT
> BE YOURSELF (From Aladdin's Genie)
> OR
> Be who you are meant to be
> OR
> BE the best you are meant to be
> OR
> Excellence Arete – Self-Actualization

Excellence was something that had been instilled in me at a very young age by my father, and I always felt that he expected too much of us[113]. If I got 60% in a test, he would say why 60 and not 70. When I got 70%, he would prompt me to aim for 80% and so forth as the following reflection indicates.

> I also realise that my dad had HUGE expectations of me, that I could not live up to, hence he was quite proud of my academic developments and achievements, but always expected better, hence my development of always expecting better of myself and others. One of the things my HoD keeps on saying about me is that "Walter expects so much more of our students"[114]

To get back to the question, what was my teaching approach exactly?

VIII.2.v Being present

Quite early in the year, I realised that it was more important just to be 'present' in the class with the students, and to make sure that I make good decisions that would benefit

[112] See reflections in Note on Reflective Practice Methodology 23/04/2014
[113] See reflections in Johann Zimmermann Uys /10/2/14\
[114] See reflections in Johann Zimmermann Uys /10/2/14\

the course in the long term. The following is an extract of my reflection on 21st February that year [115].

> In waking this morning, I realised that I don't need to teach anymore. No need to drag others to their salvation. Learning from OJ, that even teaching, or the concept of teaching, is a construct of the mind. Ultimately all wisdom arises from the unconscious. Reflecting on the quote from Einstein:
> "The intuitive mind is a sacred gift and the rational mind is a faithful servant. We have created a society that honors the servant and has forgotten the gift" (attributed to Albert Einstein).
> I guess trust is important, in that if I don't trust the moment, I try and create my own version of what I believe it should be.
> True reflection is not thinking about your practices. It is about seeing yourself in your practices. Too often we want to make a situation fit our preconceived ideas of what it is supposed to be, and by doing so, we miss what it really is. Then we can always blame someone or something for the situation not being what it is supposed to be.
> Sometimes we are quick to try and change the circumstances to suit our view of what it should be, instead of appreciating the moment for what it is, in all its ugliness or beauty[116]. By being scared to face the music, we make our own tunes to dance to. By being uncertain, we allow ourselves the room to grow and to learn from what is emerging from a given set of circumstances. By being too confident of ourselves, we only learn what we think we know, and miss the lessons that the moment is providing.
> As I realised before, I don't need to teach, I just need to be present, and do what is required in the moment!!! If this means talking to them about writing, then so be it.[117]

From this reflection, three things became evident. 1. Being in the moment or 'present', 2. Trusting my intuition, 3. I don't need to try and teach anymore, teaching happens in the moment of action. This spilled over to the students in that they learned

[115] See reflections in Reflection 21 Feb 2013
[116] See Rinpoche (1983)…"What is actually important is here and now"
[117] See reflections Learning to teach 18/3/2013

in more ways than one that I was there for them, and that I just expected them to be present. This can be seen in C4_ZA's reflection.

> Well for starters our lecturer Walter played a big role in my learning through his unique teaching method as well as his *passive personality* and **being there** for everyone, keeping us motivated. (C4_ZA)

At the time (23/4/2013) I had reflected on how this approach could possibly operate[118].

> Also, while running, I thought about the methodology for a reflective practice as follows:
>
> 1. Regular practice i.e. set time aside for your research/practice like practicing the piano
> 2. Trust your instincts/intuition or go with the flow (Sprite: Obey your thirst)
> 3. Act on your intuitions (depending if reflective practice or abductive/inductive)
> 4. Inquire about concepts
> 5. Explain actions based on the best possible explanation (Inference to the better explanation)
> 6. Reflect on these actions
> 7. Write it up/share it with others
>
> OR SOMETHING LIKE THIS.

This 'being present' aspect of my teaching was recognised by MH and SM.

> Walter also emphasized that we should focus on the "**now**" by giving the current task or activity at hand full attention and not allowing our minds to drift or be clouded with thoughts which are irrelevant to the situation at hand and cause a distraction. The example he mentioned which is quite effective in helping me is the one related to a boxer or a martial artist, when he/she is in a fight – and if full attention is not given, even for a split second there could be major consequences which could possibly lead to downfall. Likewise, in life we got to take the same approach with our endeavours. (C4_MH)

> Moreover, with Walter's **teaching method** I could not be able to bunk the class because I knew that if I am not in class there is no way that I would get what was done in class unlike other modules in which I would access lecture notes whether I attended the class or not. (C4_SM)

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[118] See Note on Reflective Practice Methodology 23/4/2013

So, I guess, one of the reasons why the students could not figure out my teaching approach, is that I had stopped teaching at this stage, and was just being present in the moment with them, acting on my intuitions.

VIII.2.vi Intuitive teaching

Now, Intuition is seen as the process of contemplating or "looking inside" and can be seen as a process of acquiring knowledge without the use of inference or the use of reason. Introspection is seen as being the more rigorous of the two, however intuition is seen as being the more creative or innovative process by Einstein (Holton and Elkana, 1997:97). The approach, however, did not go entirely unnoticed by the students, as likewise they were studying me.[119]

> Walter's **teaching style** was unique, strange and quite effective in my opinion. No course outline, no topics to prepare for (even though I hardly do that), no dates set for assignments or tests. Just showing up and living in the moment. This was really inspiring and really something completely new to me. Had it been I teaching this course (and I laugh out loud with the thought of me teaching), I would have been stressed. However, Walter was *quite passive* and displayed a sense of confidence in his **teaching method**. Many students would be upset at this very situation as they do not know what to expect, but the message was clear: Not to be dependent or to live as prisoners of the system, to take things into our own hands and become who we are by freeing our minds and taking control, becoming the leaders of tomorrow. And this was also one of the reasons that made me interested to actually be in class, as it required most of the time my thoughts and my opinion. And as our different views were challenged in class, we learnt more about one another, without any conflict or any desire to be the most correct one. In Walters' classes everyone was entitled to an opinion and fair treatment. Something I totally appreciated and motivated me to be in his class. (C4_ZA)

When one considers the 'flipped classroom' approach, students need to move from being *passive recipients* of knowledge to active participants in constructing knowledge through their own experiences (Al-Zahrani, 2015). This also allows students to develop their own voices (Mayo, 1999:90). The corollary of this statement is that the lecturer needs to move from a more active approach of constructing the curriculum and doing all the talking, to a more passive approach and to allow the students to find their own way. This requires an element of restraint by the educator

[119] I am including the student's entire reflection paragraph, as it speaks to the heart of the matter.

in order not to do too much for the student. The references to my passive approach on the preceding quotes aptly illustrate this approach to teaching.

> Walter with his *passive* way of conducting the class made me feel at ease and that whatever I am going to say is basically my opinion and my thoughts (C4_ZA).

Thus, the next question I had was how do I teach the students to learn for themselves, if I'm not to teach them and for them to become knowledge producers and not merely consumers of pre-packaged information? The start of this process is of course to teach them the principles of inquiry through the subject of research in Information Systems.

VIII.2.vii Summary of my teaching approach

Section 3 explored the dual concepts of 'How' and 'teaching' as well as the related and synonymous terms, in order to arrive at a meaningful narrative (explanation) on 'How' I 'taught'; alternatively referred to as my teaching approach. From this analysis, six characteristics can be derived from my teaching namely:

1. *Freedom to learn*: Liberating students to express their individuality and explore topics outside the course.
2. *Unstructured*: *Unstructuring* the curriculum moved students to new insights on how society is constraining their thoughts and beliefs.
3. *Thought provoking*: Open discussions and sharing of diverse opinions is very challenging and *though-provoking* for the students.
4. *Setting high expectations*: Setting *high expectations* is one of my individual characteristics that recognises excellence in everything I do, thus demanding the same from my students.
5. *Being present*: *Being present* allows teaching to happen in the moment of action.
6. *Intuitive teaching*: *Intuitive teaching* is expressed as a confidence in the lecturer's abilities to direct the course.

The *Freedom to learn* approach provided students with a safe environment to discuss and explore topics outside the curriculum that was important to them. This approach was expressed as a 'casual', 'relaxed', 'flexible' and 'free-styled' approach in the classroom that encouraged the students to express their own freedoms inside and outside the classroom.

The *Unstructured* approach was unsettling to some students and allowed them to reflect on how courses (and society) constrain their thinking. In line with (Saddington, 2000), it is the role of the lecturer to restructure his approach in order to bring about a new social order. This enabled the students to realise the value that such a holistic approach meant to them in their own social, mental and emotional development.

Through introducing many open discussions in the classrooms, and having students share their opinions, was *'very challenging and thought provoking'* to the them. This approach influenced the way that students thought about their own roles as students.

Setting high expectations was something that was instilled in me from my youth and was recognised by my HoD as one of the principles that I brought to my teaching. This encouraged excellence in my teaching and in my student's work.

Being present is more important than teaching and allows teaching to happen in the moment. Students also pick up on this presence as 'being there' for them.

Students experience *Intuitive teaching* as a lack of preparation, but meanwhile it represents the confidence in the lecturer's knowledge and his abilities to direct the course in the way that students determine.

In this summary, I represented six characteristics of my teaching approach that shaped the course of events that followed.

VIII.3 Directing learning

This section answers the research question, RQ5 "How to teach students to be self-directed" formulated in March 2013. The questions that I am attempting to answer here are: (RQ5) how did it come about that I taught students to teach themselves, and (RQ5a) how did I support them in this process, as well as (Q5b) how does one teach students to assess themselves and (Q5c) at what stage is the educator (coach) not needed anymore? The answers to these questions will be explored below.

Insights to this answer came when I realised that the problem was with the PBO approach and structuring of the course, and that once the problem of pre-determining the course was taken out of the way, it left the path clear to explore (and develop) our own curriculum. The data came from a sequence of terms that together comprised a 'course' or journey.

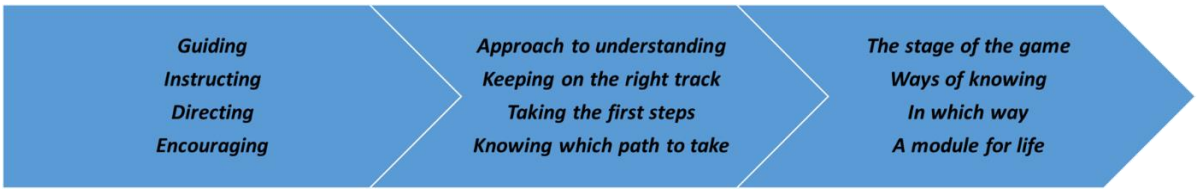
VIII.3.i Stages of learning

It is well-known that all reflection or inquiry starts with some puzzle or some contradiction between what one knows and what one doesn't. This puzzle is expressed by the students in terms of the statement 'which way to go?' Epistemically this question is answered by finding out what steps, process, procedure or method that needs to be followed. Practically, however, this is determined by taking the first step.

> The course starts with a way and ends up with a plan or curriculum and not the other way around!!!

It is not a coincidence that students use terms that are typically ascribed to a journey in terms of a metaphor for the course. Education itself has adopted terms such as 'course' or 'curriculum' in their lexicology. For an example of a recent PhD that uses a journey as a metaphor for teaching see Lotz (1996). Each section of the journey is represented by a particular destination. Each destination has its own structure (itinerary), map (direction), travellers and attractions. At each destination there are a number of events and activities that take place (Lotz, 1996:12). In this way, students reflect on the choices they made and the places that they visited along the way. In order to understand how these journeys unfold, a deeper analysis of their reflections reveal the steps and sequences that they follow. The sequence of actions can be illustrated as follows.

Figure VIII.1 Stages of self-directed learning



There were many synonymous terms that were coded under each stage, but a selection was made that most accurately represented this journey.

VIII.3.ii Guiding students

So, if I am not teaching anymore, or teaching the students anything at all, what am I doing then, both in the classroom and outside? One term that frequently appeared in

the context of 'How' is the term 'guide'[120]. Other terms that Knowles (1975) uses for guiding are "helper, guide, encourager, consultant, and resource". Other synonymous terms (Cycle 2) that the students used for 'guiding' were direct or directed (31) and instruct or instructed (13/75). Guiding students can be seen as the opposite of 'lecturing', 'instructing' or 'teaching' them. For the students, 'guidance' refers to a research process, about study, me, the reflection process, people, we, textbook, and on writing the document. The precedence of guidance refers to things that are new, unfamiliar, depends on things, and what they didn't know.

> The research process was a very new and unfamiliar way of completing a task and guidance was necessary to assist the process operated efficiently and goal determined. **Guidance** is given to student researchers through interactions from the lectures, direction and advice was given on what to research and how to research. (C2_TLT)

> Walter initiated the learning process during classes. Although most of the actual learning was from doing the work, we learnt as we went along. We were given tasks and some form of **guidance**, yet we were *encouraged* to learn for ourselves. Another way of saying it is, "we had to research on how to do research". (C4_MH)

In terms of sequence, guiding leads to how to do things, deal with things, pull things off, making progress, and could also lead to one's downfall as one student wrote. Downfall indicates the contrary of the other kinds of outcomes that can be obtained from guidance, and the student explains herself as follows.

> Another thing I learnt about myself is that I assume that because I know something everybody else does and if I can learn it why can't you. For me personally if I can do it, so can you. I also realised that some people need to be **guided** and this is their biggest downfall. (C4_LLL)

The full sequence of 'guidance' then becomes as follows:

> unfamiliar>new>don't_know>research>study>lecturer>***guidance***>how_to>deal with

[120] In the corpus of data, there were 165 references to the terms guide, guided, guidance, guides, guiding, guideline, guidelines of which 34 appear in the direct proximity to the term 'how', and appears after 'way'.

From this sequence, the following definition can be formulated (Cycle 3) for guidance as "A way to learn how to deal with the unfamiliar". Students expressed a clear concern that there was a lack of guidance during the course:

> Walter taught the module as if it was not a priority. We were not taught facts about research or shown how to do it; we were left without **guidance** and **consultation** and constantly pushed over by a new change. We were literally thrown into an ocean and we had to depend on each other's individual skills to come out alive. (C4_STS)

> The way I went about dealing with the various tasks I had was difficult at times especially at the start of the assignment. With normal projects you get **instructions** and get a clear understanding of what must be done and how it must be done. (C4_HM)

Even though this is true in some ways, there is a reason for this. Some students' perceptive or reflective abilities stopped short of recognising why I was not giving them the amount of guidance they were expecting. Not all the students shared the same sentiment. As can be seen from the following quote, a lack of guidance has led to this student to change "the way I think and see the world".[121]

> This module trains you and assesses how much of that work can we do for ourselves without being pushed or **directed** by a lecturer. To realize how and what exactly you learn about yourself through doing the assignments. The coursework is only included so as to find us work to do on which lecturers can assess our ability to work on our own and educate ourselves effectively. (C4_KM)

> Even though many may complain that the lecturer did not provide them with enough **guidance**, I feel as if he has taught me a great lesson in life which has changed the way I **think** and **see** the world. (C4_SBP)

> I expected that the lecturer would always be there and **guide** me along the way but Walter chose to help us find our feet and showed us that if we wanted an answer on how to do something we should take initiative and you would find your answer. (C4_NCC)

This meant that some of the students had learned how to guide themselves in their own learning, which of course is the aim of self-directed learning.

> To elaborate on this, it means reading articles and doing further research on them, being given assignments and thinking outside the box on how to approach them without being specifically **directed** what to do, formulating your own

[121] This is only one of a number of extracts that express the same sentiment.

> strategies on how to best lead a group, participate in a group or deliver as a group. (C4_QN)

> Independence. I no longer need to depend on the **instruction** and **guidance** of a lecturer to be able to formulate my own conclusions in terms of my work method and philosophy. Being independent also allows one to be able to exercise their process and methods, as in how they understand, interpret and analyse things. I can choose for myself what will affect me and how I can overcome it – based on my independence and experiences. (C4_NM)

The kind of guidance that the student refers to here, is not the learning of content or even a procedure, nor the 'manipulation' of some information in order to meet certain cognitive criteria for long-term memorisation (Kirschner, Sweller and Clark, 2006:28). What we are talking here is the knowledge of how to 'do' something, which is not learned by instruction, but by 'doing'. One can show someone how to do something i.e. to show a teenager to drive a car, yet the person needs to become proficient in driving by 'actually' driving the car, not merely memorising the steps required to drive the car. I don't know of anyone who would put their trust in a heart surgeon who studied his art under instruction and book knowledge only without 'practicing it'. This is aptly expressed by KK who had to rise to the occasion as a group leader, and in the process, learn by himself how to become a leader.

> We tend to underestimate our capabilities as individuals and limit ourselves to a certain level where we'll feel safe and comfortable, that's what I used to do until people I hardly knew saw a potential leader in me. They **trusted** me enough to lead and **guide** them. I never knew I had the potential to lead a team for a whole semester, not only was I leader by title but I was there when help was needed, I resolved conflicts, dedicated my time to attend group leader meetings and made it a point that I gave feedback the same or following day. I learnt that I was born a leader, I regained my confidence. I also learnt how to complete tasks under pressure, on time and independently from my lecturer. (C4_KK)

This experience of 'minimal guidance' empowered him to lead his team, perform under pressure and act independently of his lecturer. Returning to Kirschner, Sweller and Clark's (2006) critique of guided learning, I suspect that the problem with their conclusion is that they rely on measurable retention of information alone, and do not consider the other kinds of knowledge such as intuitive or practical knowledge. Furthermore, if they discount constructivist knowledge, then they are doubting the very basis of empirical science which is not validated by instruction, but by practical observation and experimentation. If one were to follow one's argument along the

causal chain of events, then one would invalidate all kinds of practical (experiential) knowledge, including that which one experiences daily in one's own life. The students were provided with a framework to guide them in the process of reflections and their assignments.

> Questions have been provided so this means that the whole reflection process will be guided by those asked questions. This are the kind of questions asked; **what, when, where, with, how, who, why**, and the conclusion will be provided at the end. (C4_MM)

This provides them with a rigorous approach from which they can develop their own questions i.e. moving towards a problem-posing paradigm. Again, quite independently of the primitive interrogatives or 5Ws and H (Five Ws, 2012) King (1993) developed a system of Socratic-like questioning called *"guided reciprocal peer questioning"* where students in groups of three to four "are provided with a set of *generic* questions to use as a guide for generating their own *specific* questions on the lecture content" (King, 1993:32). These questions range from 'What' questions i.e. "What is the main idea of…?" or "What if…?" or What is the meaning of…?" to 'How' questions of "Explain how…?", "How are…and…similar?" or "How would I use …to…?" and 'Why' questions such as "Explain why…?", "What is the best…and why?"

> "To generate those questions, not only did the students have to identify the main ideas of the lecture, they also had to consider how those ideas relate to one another and to the students' own existing knowledge" (King, 1993:32).

Clearly one cannot infer that these questions were derived directly from Aristotle's elements of circumstances; yet their application and intention are to guide dialectical questioning on a particular subject or topic in order to isolate the root cause or issue should not be missed.

VIII.3.iii Instructing students

'*Instruction'* can either mean to give someone orders, or to give them information (See link to Information), or to "cause them to acquire some knowledge" (instruct M-W, 2017). In the strictest sense of the definition then, I was 'instructing the students on what to do. In a practical sense, the students did not share that sentiment. M-W listed a number of synonyms for instruction such as to "educate, indoctrinate, teach, lesson, school, train, tutor, acquaint, advise, apprise, brief, catch up, clear, clue (in), familiarize, fill in, hip, inform, enlighten, tell, verse, wise (up), adjure, bid, boss

(around), charge, direct, enjoin, command, order, tell" (instruct M-W, 2017), none of which accurately reflected what I was attempting in the classroom. Whereas 'instruction' means to 'give orders', construction leans more towards "to cause to acquire knowledge or skill in some field" and more likely "to form by putting together parts or materials" (construct M-W, 2017). Related terms would be to 'build, make or make up, contrive, devise, imagine or think up something. For the students however, construction referred either to the construction of questionnaires or reports, being constructive in doing their assignments, using specific constructs, or with reference to how society is constructed.

> We worked **constructively** and got many things done and if we could not finish it, we would contact one another via WhatsApp, BBM or if it was too much to discuss, we would phone one another. (C4_SKP)

So even if I was using a constructivist approach, neither I nor the students were aware of this. This would be a pity if there were much to be learned from 'constructivism and its objection against banking education in favour of knowledge construction and making meaning from experience (Constructivism Wallace, 2015). Now, 'constructivism' is based on the premises that "thinking is grounded in perception of physical and social experiences, which can only be comprehended by the mind" (Jonassen, 1991:10). This view is very similar to what I have derived from Aristotle's writings and the data in terms of Q1 – perceptions and Q2 form of thought.

> "The important epistemological assumption of constructivism is that meaning is a function of how the individual creates meaning from his or her experiences" (Jonassen, 1991:10).

The contrary of constructivism is 'objectivism', where meaning is independent of human understanding and is representative of reality, whereas in constructivism, meaning is determined by the knower's understanding and grounded in perceptions of their experiences. Clearly this occurred here; however, my approach to teaching could not have been constructivist, even though we were 'constructing' a research project together.

> "In a classroom where teaching is informed by constructivist theory, the teacher's role is not to deliver facts, but to provide learners with the stimulus and experience which then allows them to pose their own questions,

> hypothesize, explore, predict, and investigate knowledge for themselves" (*constructivist* in Wallace, 2015).

Constructivism, as rooted in the thinking of Dewey, Bruner, Piaget and Vygotsky would be an ideal candidate for an approach to teaching students to teach themselves, as well as for an educator to teach himself, but I don't believe this represents the entire picture.

The question still remains, did my teaching then comprise just creating the ideal learning environment for my students and then finding them tasks and activities to do, or is there more to my teaching than that. Even though I did not direct or instruct the students, the conceptualisation of the project was mine, but the execution was not. So, in some ways I was part of the process, yet not an equal participant, as the initial conceptualisation of the project and the build up to where we were in year three were partly my doing.

Another term, not identified in the context of the data is conduct, which means either "the act or activity of looking after and making decisions about something", "to cause to move to a central point or along a restricted pathway", "to point out the way for (someone) especially from a position in front" or to "to cause (something) to pass from one to another". Again, conducting here would refer more correctly to the way that one "behaves" in the classroom, or in terms of how one would "orchestrate" events, much like the conductor in a symphony orchestra. Although the term 'conducting' holds much promise for my approach, especially with reference to Aristotle's educational philosophy of *mousikē*, I'm not entirely convinced that it is the case. Conduct in education refers properly to "How students behave" and does not necessarily consider the concept of orchestrating a group of students to get everyone to sing off the same page.

> I would like to just thank you for the way you **conducted** this course so far, it's very interesting and I would wish for many other lecturers to think further than their noses. (C4_TH)

Again, I would agree that without my presence in the classroom, none of these activities would have occurred, yet the question still remains, what was my role, and how did I do it, and what did I do? Some terms derived from the word 'construction' that may hold promise to a reasonable explanation are terms such as 'attending' to the students, infuse, chaperone, or support them and even possibly inspiring them. Yet

even the word support is too strong, as firstly it does not occur in the context of 'How', and secondly students used it mainly to show 'support' from their friends or families (C1_SIS), supporting tools and resources (C4_SM), or 'supporting' their arguments with evidence (C2_TG, C2_NL and many more).

> I always wondered how people came up with facts and now I finally understood. It was through research. You have to find facts to **support** your argument in order to carry the message across to your audience. (C1_MKM)

So, fundamentally, 'support' belongs more appropriately to the term 'with'. *With* is a preposition that refers to "in accompaniment, combination or presence" or also used "as a function word to indicate the means, cause, agent, or instrumentality". With refers to "being accompanied by another person or thing" and is derived from the Latin word 'cum'[122] or the Greek word meta (μετά) which means to accompany. This is also closely related to the Greek term sýmfona me (σύμφωνα με) or Symphony, meaning to be in accord with or in accordance with. Again, there are strong links with Aristotle's concepts of *mousikē*, where everyone is 'in harmony' with each other.

So back to the drawing board. If it is not guiding, or instructing, or leading, or supporting students, what could explain the tremendous growth in the students' learning, and their ability to develop their self-directed capability, if they had not already done so on their own before? One of the other concepts that I reflected on at the time was that of 'coaching'.

> Looking at the ex-South African coach Kitch Kristie, who managed to lead the Springboks to a World Cup victory. Once he left, he started coaching the Brumbies, who were bottom of the log, and this year have had an unbeaten record. [123]

Can one person have such an influence on a team, and what does one need to do to achieve those kinds of results? Of course, if I knew these answers, I'd make millions. To return to the topic at hand, coaching students would be an entirely different affair than educating students to think critically for themselves.

> The question I have been thinking about is, if one trains for independence, does one reach a stage where the coach is not needed anymore?

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[122] https://translate.google.com/#la/en/cum.
[123] See Evernote Reflection Learning to teach 18/3/2013

> How does one lead or support or guide the students at this stage where they are becoming more independent? [124]

So, I'm guessing that this line of inquiry is not taking one much further, and that I would have to remain with 'constructing' a course as the way that I influenced students to learn how to be self-directed, even though I did not formally subscribe to any specific tenets of constructivism or constructive teaching, whatever that may mean. Teaching does not exist on its own, so if the cause cannot be found in my teaching, then most possibly the answer may be found in learning. I 'initiated' the process in class, but that was it. Without any further teaching, guidance, instruction or even coercion or threats, how did this process occur? One aspect of my teaching that my students reflected on, was the way in which I ***encouraged*** them to learn[125].

> The most important lesson I learnt from Walter was how to be independent and confident in all I do. He gives **platforms** to students, **encourages** and listens to students. I could go on and on about this man that I've grown to admire. (C4_KK)

> Walter initiated the learning process during classes. Although most of the actual learning was from doing the work, we learnt as we went along. We were given tasks and some form of guidance, yet we were **encouraged** to learn for ourselves. Another way of saying it is, "we had to research on how to do research". This **approach** has brought upon a lot of stress and responsibility on me being the leader. (C4_MH)

So essentially, I gave the students tasks and assignments to do, discussed these in class, expected them to succeed and encouraged them to take action and learn for themselves. So that's it in a nutshell. 'How' I ***encouraged*** students to be self-directed will be examined next.

> "The minimally guided approach has been called by various names including discovery learning (Anthony, 1973; Bruner, 1961); problem-based learning (PBL; Barrows and Tamblyn, 1980; Schmidt, 1983), inquiry learning (Papert, 1980; Rutherford, 1964), experiential learning (Boud, Keogh, and Walker, 1985; Kolb and Fry, 1975), and constructivist learning (Jonassen, 1991; Steffe and Gale, 1995)", from Kirschner, Sweller and Clark (2006).

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[124] See Evernote Reflection Learning to teach 18/3/2013

[125] 'Courage' is a concept that Aristotle covers in great detail in the NE, and is a possible source of further research on the kinds of attributes that graduates need to develop for self-directed learning.

Kirschner, Sweller and Clark (2006) argue that human cognition architecture is at odds with the concept of minimally guided learning, as the goal of instruction is to *"give learners specific guidance about how to cognitively manipulate information in ways that are consistent with a learning goal, and store the result in long-term memory"*. They further assert that *"it appears that there is no body of research supporting the technique"* (Kirschner, Sweller and Clark, 2006:8). Despite these strong claims there appears to be a wealth of literature on constructivist-based learning (Kim, 2005; Tétard, 2005; Wilson, 1996) that emphasises the converse.

One does not need to do much research in order to determine whether minimal guided instruction is better than guided instruction. The local tour operator would be glad to sell you a guided tour. The local bookshop on the other hand is filled with tourist guidebooks. Which one is better for learning? The answer is clear. When one books a guided tour of a city; one relaxes in the comfort of an air-conditioned bus, sits backs and enjoys the view as the guide takes one on a tour of the city and explains all the important features along the way. When one does a self-guided tour on the other hand, the situation is entirely different. One searches for maps, suitable transport, places of interest and accommodation along the way. This of course requires a lot more effort and planning on the part of the tourist. In the process, however, the self-guided tourist learns how to find his way around a strange city, and in the process saves himself a lot of money along the way.

> However, with this research and philosophy module things were done in an **informal** manner and learning was self-motivated through our **guide** Walter of course. I feel that he focused more on the learning aspect of individuals, allowing us self-develop our minds; bringing it alive rather than just throwing boring literature at us. As the course progressed, I began to find the learning inspiring, fun and exciting. (C4_ZA)

This does not mean that one does not have directions to follow. The only difference is that one has to create one's directions oneself if one chooses not to follow any map or plan that is also a choice the differences the tourist has to make the choice, the choice is not made by the tour guide. With more wisdom than his age, C2_HvdS might have put his finger on the issue, that there is more than one way to lead a project.

> Gaining humility and accepting my role as one of support enabled me to learn that there is more than one way of project support and one does not always have to lead from the front i.e. project leader position. (C2_HvdS)

The actual answer is that the way in which I taught students to teach themselves was by pointing them in a particular direction and '*encouraging*' or giving the students the courage to take the steps that they need to succeed.

> He ***encouraged*** us to take initiative, be self-directed, think freely and be innovative and creative. He strategically ***planned*** our assignments as well as classes. (C4_MH)

VIII.3.iv Approach to understanding

One of the most prevalent usages in education of the term *'approach'*[126] is by Marton and Säljö (2005) that is used to describe 'how' students learn and/or how one teaches. They distinguish between a deep versus a superficial learning approach. A deep approach is where students are seeking meaning in what they do; as opposed to a superficial approach where students acquire and reproduce factual information. This distinction was popularised by Biggs and Tang (2011:29) in terms of Intended Learning Outcomes (ILOs). They identify cognitive strategies that students use; essentially verbs that describe the kinds of learning outcomes. These range from the superficial approaches of memorisation, identifying, naming, describing, comprehending, relating, arguing, explaining, then applying these to something which they call 'near problems' such as relating, hypothesising, and ultimately applying these strategies to far problem; with reflection as the pinnacle of a deep approach to learning[127]. Entwistle, Hanley and Ratcliffe (1979) extended this to include a strategic learning approach which refers to how students organise and manage their learning in order to excel. These differing approaches have been subsequently mapped to teaching approaches that emphasise each of these learning styles.

The students see 'approach' as *'how they need to go about doing things'* which refers more to the concept of 'method' than it does to 'direction'. The particular kinds of things that the students '*approached*' in their reflections was life (20/283), the research (70/2322), the course (28/307), their assignment (39/1439) as well as the teaching (70/257) that I used.[128]

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[126] Approach refers to "the means or procedure for doing something" or "an established course for traveling from one place to another" (M-W, approach).
[127] These verbs are not unlike those used to describe the levels of learning by Bloom and Krathwohl.
[128] These will be examined when looking at particular approaches to how we do or experience things.

> Therefore the **approach** was to understand and to learn how to research and how to benefit from each process. (C4_LM)

> I emailed everyone (see email one) to tell them what they should do and how they should **approach** their assignment. (C4_SP)

An approach comes from narrowing things down (1/10), focussing on things (12/156), discussions (13/111), guidance (4/74) and an inner sense (6/78). Motivation does not appear to play a significant role in students' approaches (0/60).

> I learnt how to deal with people better and how to **approach** certain topics better when they needed to be discussed with others, as certain topics can be quite sensitive to certain people. (C4_SP)

> I now take a different **approach** to life including my daily tasks; I am much more open minded. This module also helped me develop many leadership skills and qualities. (C4_MH)

> I learnt about IS philosophy, African philosophy, different schools of thought for research and just how to **approach** certain aspects of the course. (C4_QN)

By having a general 'approach' to their activities helped students in gaining a sense of direction (4/67), finding their way (39/321), gaining a footing (1/4) being prepared for the future (8/136) or learning something new (57/).

> This kind of **approach** prepares us very well for the future in the research field where we will be required to do things on our own. (C4_TZ)

> As time passed we started to get our **footing** and structure in the group as to who must do what, basically we found direction as to where we should be and what must be done to complete the journey 'so called research design". (C3_HM)

> Narrowing down my research helped a lot because now I gained sense of direction on how to **approach** my topic. (C1_TJ)

Fundamentally, therefore, this approach to learning taught students how to find their own way, a topic that will be examined in more detail when looking at my teaching approach.

> This **approach** is learning by doing, not being given a fish, but being taught how to fish so that you can do it yourself and teach, assist others along the way. (C4_AM)

> Walter initiated the learning process during classes. Although most of the actual learning was from doing the work, we learnt as we went along. We were given

> tasks and some form of guidance, yet we were encouraged to learn for ourselves. Another way of saying it is, "we had to research on how to do research". This **approach** has brought upon a lot of stress and responsibility on me being the leader. (C4_MH)

This approach was beneficial to some, yet others struggled to adapt to this different approach.

> This teaching **approach** can be good for some, and not so many. Depending on the person, it can be a great learning experience. I experienced what is to be in a management team and run a big project. I've learnt how to write literature reviews and a synthesis, how to research, how to reference and how to take initiative. Your ways made me question, as well as realise how normal it is for me to follow whatever the lecturer says, it gave me a brand new way of thinking. (C4_CJR)

> On the other hand this **approach** had some similarities to other modules for instance a research module I had with Mr Theo, time is also not a factor with him, he also likes us to reflect and chats casually in class so that we can feel like we can talk to him about anything, which was nice and also like this module, we were rushed in the end and marks came out when it was exam time, maybe it is something that happens with "chilled" lecturers. (C4_QN)

The outcome of this approach was that students learned how to do research as well as a number of other skills. More importantly they also learned how to do this themselves whilst learning to critically reflect on things, question dogmatic beliefs, be creative and take their own initiative. These aspects will be examined in more detail under the section on my teaching approach.

> Thinking back, I did not consider that today, from this teaching **approach**, I would have learnt:
>
> *Independence*. I no longer need to depend on the instruction and guidance of a lecturer to be able to formulate my own conclusions in terms of my work method and philosophy. Being independent also allows one to be able to exercise their process and methods, as in how they understand, interpret and analyse things. I can choose for myself what will affect me and how I can overcome it – based on my independence and experiences.
>
> *Resourcefulness*. Through the need for my participation in the module, I learnt how to be resourceful. This I did through my interaction with other students and people involved in the research. I also used a lot of resources for my research, such as; current SAU students, past students (from previous year), journals, librarians, lecturers, newspapers, electronic resources etc.

> *Critical Analysis*. This is important in that I now am able to critically analyse whatever it is that I do or that I am involved in. I have learnt that it is important to question everything – be it the norm or not.
>
> Having learnt these three things, I feel that in the future, as I prepare to study further and finally enter the working environment I will be able to become constructive, effective and efficient in all that I do. (C4_NM)

In conclusion, students referred mainly to my approach of teaching which required of them to research things for themselves instead of being told what to do.

VIII.3.v Gaining a sense of direction

Direction refers both to the verb of 'directing' as *"a statement of what to do that must be obeyed by those concerned"* or *"the act or activity of looking after and making decisions about something"* and the noun of *"a guiding or motivating purpose or principle"* or *"a prevailing or general movement or inclination"* (Direction M-W, 2017). Direction is also used as a related term in formulating 'policies' (Policy M-W, 2017). Other related terms for direction are 'course', 'route' or 'way' with all of these terms referring to *"a course (such as a series of actions or sequence of events) leading in a direction or toward an objective"* (M-W way) or *"the direction along which something or someone moves"* (M-W course). The direction differs from the 'steps' or sequences that one needs to take by indicating some direction that needs to be taken in order to reach one's proposed destination or goal. These aspects will be examined when looking at the 'course' of events. When isolated in terms of 'How', there were 18 references to direction. The students used 'direction' with reference both to

> 'guidance or learning on how to approach things' as well as the 'the direction that the course was heading towards'

For students, direction comes from their own 'sense' and is achieved by 'narrowing things down' (C1_TJ), from guidance or advice (C2_TL) or by being showed what to look at or do (C4_CC).

> Narrowing down my research helped a lot because now I gained sense of **direction** on how to approach my topic. (C1_TJ)
>
> Guidance is given to student researchers through interactions from the lectures, **direction** and advice was given on what to research and how to research. (C2_TL)

> Walter showed us all a lot this semester and taught us how not to always depend on people to give you **direction** because you may not always have it in the working world. (C4_CC)

In the course, however, students were complaining about the 'lack' of direction.

> Throughout all of the assignments given, there was a lack of **direction**, poor management in administration and time. If a course outline were set as a guideline for students as well as the head of department, the stakeholders for IFS352 would have been more aligned and on the same page. (C4_TLC)

> Everything that I have learnt about IS Research I had to teach myself. I often enjoyed not being told what to do; it gave me a sense of finding my own way, although when things remained without **direction** it became extremely frustrating. (C4_STS)

The result of this lack of direction was that students developed their own sense of direction.

> As time passed we started to get our footing and structure in the group as to who must do what, basically we found **direction** as to where we should be and what must be done to complete the journey of 'so called research design". (C3_HM)

The kinds of questions that students raised about direction were 'how to approach things', 'what should be done', or 'where one should be going'. In their usage, direction comes after a 'sense' and 'focus' and leads to 'an approach', 'finding a way' or a 'footing' or personal 'gain', terms which will be examined next.

Direction is not really a term that is used in education. The term Director is more often used as a title in Government or industry. Etymologically, to 'direct' comes from the term "setting things straight" (*dirigere* in L.) or to guide (direct in Online Etymology Dictionary, 2010). Related terms in education are to 'instruct' or to 'teach' or to 'guide'. These terms are implicit in higher education and reinforces the causal link between students' direction and the lecturer directing. This concept is aptly encapsulated by SDL (Hiemstra, 1994). Therefore, by learning 'how to approach things' effectively meant that students were able to provide their own direction without the aid or guidance of the lecturer.

VIII.3.vi Keeping on the right track

Having a lack of direction seems to be the first prompt that motivates students to find out which way to go or develop their own direction. There are two terms that both

come from a sense of not knowing or not having an idea of in which direction to proceed. These are *track* and *line*.

> Line refers to 'ordering one's thoughts into a coherent sequence that flows' and track to 'remaining on course in order to reach one's destination.

The following quotes illustrate the origin of these terms as well as the sequence. Track starts from being unsure (uncertain) of how to do things or having no idea where one is heading, whereas line starts with some prior knowledge that one is aware of that may be in question.

> At first I thought this would be a challenge as I had no idea where we heading, if we were on **track** or even what this course required for me, however this helped me to stay prepared for anything. (C4_LLL)

> As it is easily possible to get side **tracked** and do the wrong work I thought this helped me in that regard as well. The feedback also served to help me when I did the work to make sure that I was not making mistakes. (C1_EJV)

> Being '**on track**' ensures that one doesn't do the 'wrong work' or 'make mistakes' (C1_EJV).

> I was mostly unsure on how to conduct a technical report, I read up about it and I got a bit of an idea, but didn't feel as confident as I would have liked. Also as I was working as an individual I did not have group members to check my work to see if I was on the right **track**. (C1_RAT)

These terms are also used in different ways, with different stems. For example, 'line' can also refer to a railway line (C4_SKP), a line of topics (C1_LEM), or a line of text (C4_EAT). Derived terms from 'line' are 'outline', 'guideline', 'in line', 'online' or 'deadline'. Outline refers to a number of things, namely a list of things, a structure for the course or the way in which assignments are formed.

> Firstly I had to define and **outline** the reasons why I wanted to do of this research.

> Others felt that they needed a course **outline** that clearly stated their test dates, assignments and other tasks.

> Writing this report also took some research and a tremendous amount of thought, but after really thinking hard and long about this, a decision was made to just write, and if I was happy with the outcome I would stick to it, if not I would edit I then set out an **outline** of what I wanted to discuss which assisted me in creating a flow.

Guideline refers to a 'course' guideline which explains in detail what the course consists of.

> I have learnt very early in this course that we would not be spoon fed and told every single detail or **guideline**. (C4_SBP)

In-line refers to being similar to something else or another process.

> Suggested to the group that we find a different strategy in completing our synthesis, one that is more **in line** with the YouTube video that was emailed to us by the management group, and that we discuss it in our next meeting. (C4_ZA)

Online refers to finding things on the internet.

> When reading articles **online**, it was important to develop a method to understand whether it was relevant to use or not. (C3_MM)

Deadline refers to when tasks or assignments (or exams and marks) are due.

> I liked that the lecturer was very flexible. When certain students or even the class struggled to make a **deadline**, it was not a big problem for the lecturer to change the **deadline**. (C4_CK)

In this process, students developed the ability to form their own line of reasoning, direction and structure; whether it was for their assignments or for the course or in terms of even in what direction they were heading with their own lives. If these are provided to them by the educator or the educational system, it removes the responsibility from the student to find his/her own way and hence his/her independence.

Similarly, when a child grows up, if the parent continuously tells the child what to do, when to do it, how to do it and so on the child will never develop the responsibility or inner will or even discipline to do so. These kinds of habits are formed at home, but they come to their full expression in business and government where employees expect to be told what to do rather than take their own initiative (from my years of industry experience this is the rule rather than the exception, especially in government).

VIII.3.vii Taking the first steps

The next sequence in the coded terms is the 'steps' that the students took. Steps for them are

> Steps are a way to highlight the direction one needs to take in doing something.

The topic of steps involves learning which steps to take, or what steps are involved, or what is important, as the following quotes illustrate.

> We knew that organization and communication were important to any successful project but had no clue on the **steps** involved in making such a big project a success. Luckily the scope of our project was narrowed. (C3_AM)

> We discussed and argued (5 hrs) on how the structure of the eventual group synthesis should be structured and which brands and phones we'll be focusing on. We found good articles on the **steps** taken when doing a group synthesis with **step** by **step** instructions. (C4_CJR).

> The resounding concern that had the entire group stumped for a lengthy period of time was how we should go about interpreting the data as this was the most important **step**. We found it difficult to decide on which sections to focus on, as the decision was completely ours to make and not like other projects where we have been assigned a detailed confined scope within which to focus. (C4_TLC)

Taking the required steps or the identifying right steps allows the students to find their way, learn about how to conduct research or write assignments, and be one step ahead of the game.

> I think this was how Walter wanted us to learn. He never spoon fed us and help us each **step** of the way it was about finding your way as you went along. (C4_CC)

> Throughout this process I needed to take on a role of a critical thinker. I needed to take a **step** back each time I read any articles or found out any new information, and think. I needed to then analyse what I had thought, and rethink it. (C4_NL)

> He taught me how to be efficient and speed up processes, plan scenarios if it were to happen this, that or the other way – and that I was able to counter each scenario and be a **step** ahead. (C4_TLC)

By determining which steps to follow, resulted in a set of 'step by step' instructions, a tutorial or even a method on how to do things.

VIII.3.viii Knowing which path to take

Knowing which steps to take is the first step in the sequence of knowing how to do things. The next step is in determining the path or the route to take in order to reach one's destination. These are both similar terms and can be differentiated from the students' definitions as follows:

> A path is the actual route to follow in order to reach your destination.

A route refers to the process of figuring out what to do or the choices one makes in life.

The need for a path starts out from things being vague or undefined. A route starts from some indecision and a need to find meaning and making the right choices in life. So, in the converse sequence, planning a route results in a particular path to follow. This can be seen by the following quotes:

> I came across many challenges, but the most highlighted one did not know if what you are doing is the right thing or if you are in the right **route**. (C1_PM)

Finding the right route to follow thus leads to a particular path in life.

> It was also a motivation because this is the career **path** I want to follow and mainly because I want to do my honours and it is the stepping stone to reach that goal. (C4_QN)

> We were all in mist, trying to figure out where the **path** was leading, but for the fortunate ones, like I believe I am today, I can afford to stand up and show what I have acquired from this course which is a very unusual output from a university module since it expected that one has some "fundamental workplace skills" after completing a course. In this case, that's not what I got, rather I found the most important tool to life, which is self-identity. (C4_KM)

> The research assignment that is to be conducted by the class seems to be taking shape. We finally have a "**path**" that we can follow and work on as we enter into the business end of the semester. It will be interesting to see how far we get before the exams – because the scope of the overall research assignment is still very vague yet large at the same time. I honestly hope that we finish in time. (C4_NM)

Interestingly, students refer to the 'path' in terms of their broader aims in life, i.e. a career path or a path in life. This is expressed by (C4_KM) as finding his own sense of self-identity.

VIII.3.ix Stage of the game

Stage is a broader concept than 'steps' or 'path' and refers to the 'stage of life', the stages of research, the stages of the class and the stages of growth. Stage is referred to in terms of 'early stage', 'primary stage', 'first stage', 'next stage', or 'last stage'.

> I learnt the brainwashed theme also during this primary **stage** of classes through video clips and class discussions on who we really are. (C4_ZA)

> The next **stages** will be data collection, then data analysis and recommendations. A report will then be written based on the gathered information and the already existing information. (C4_AM)

> The last **stage** was fusing the articles with my technical report, this was challenging as creating a logical structure and flow for the technical report was confusing at times. (C1_LEM)

The actual stages that one of the students identified for the research report are as follows:

> This review taught me what a literature review is, the **stages** and process one goes through when conducting a literature review, why it is conducted, the inputs and outputs of a literature review, it tests if your research is applicable to your study as well as the different ways one can write their literature reviews. (C4_SKP)

> The research process includes all the **stages** involved in the completion of the technical report. The various **stages** include getting information, sorting the information, reading, analysing, constructing the technical report, referencing, evaluation and re-adjustment. The research process is a long and draining, mentally and physically. (C1_LEM)[129]

Stages come from students' need for order, logical flow or sequence and result in a report, research or self-identity.

> I was rather naïve at this **stage** and I figured later that I shouldn't have done that and there was a reason why the lecturer instructed us to carry out research for ourselves. (C4_MH)

> It is the way in which we were brought up by society which makes us think along those lines and it is the first **stage** of self -identity to realize what you truly are, what are your strengths in life and how you can use that to the best of our ability. (C4_KM)

Students refer to 'stage' as being a stage of their lives, their careers, education, the course, the assignment or even their stage of learning. Students in their third year are roughly at age 21 which is the stage where they are seeking meaning in life or self-identity (attaining their majority).

Aristotle divided education of the youth into two seven-year cycles, namely 8-14, 15-21 (Pol, 1336b33-40) and the education of free men (liberal education) from age 22-35 (Book VIII, Ch2). Considering that Aristotle attended Plato's academy from age 16 till 36, it appears that this is the period that he considered for adult or

[129] See "A process based approach to conducting a literature review" (Levy and Ellis) to validate C1_LEM's stages.

advance/higher education for himself. For the youth (below age 14) he considers "useful" subjects such as reading and writing, physical exercise, reasoning and impressions (*graphikē*) (Pol, 1337b22-25). For adults he recommends a liberal education in leisure and virtues, namely (1) human nature, (2) human habits, and (3) human reasoning (Pol, 1334b6). The kinds of character (Ethos) that a student of virtue should develop is courage and endurance for their work, and *Philosophy* for their leisure and self-restraint[130] and justice for both (Pol, 1134a21-25)[cxxii].

It is well recognised that the kind of learning and needs of learners' change depending on the stage of their lives. The most significant point is the transition to adulthood. The other is the point of intellectual maturity which Aristotle places at age 50 (Pol n.d.:1335b35). It is not clear when the transition to adulthood occurs, but the age of 21 is generally considered to be the age of adulthood in most cultures. Legally and psychologically this is the stage where children move from a stage of dependency to independence. The understanding is also that this is also the stage of one's life where one transitions from formal or sequential thought processes aimed at identifying concepts and solving problems to dialectical thought aimed at "discovering important questions and problems" (Allman, 1981:6). This concept was encapsulated by Riegel (1973) in the 'theory of dialectic' operations:

> "The theory of dialectic operations portrays a type of thinking which results in discovering important questions and problems rather than in determining answers" (Allman, 1981:6).

Fundamentally what was established by Riegel (Allman, 1981:6) is that the mature adult's thought processes are substantially different to those of a child, and that adult thought has the potential for changing itself, i.e. the adult is capable of thinking about thinking based on the current context and their prior experiences.

> As Neugarten (1977:8) indicates, adult thinking rests on reflection on the subject in context. Thus "the form of thought at one stage becomes the content of thought during the next progressive adaptation". This kind of thinking contrasts with formal logic where the aim is in resolving contradictions and arriving at an 'answer. This fundamental difference both explain why adults learn differently to children and why their teaching should be different. The immediate

[130] The term that Aristotle uses is 'justice' and 'temperance'.

> implications of 'dialectical thinking' for curriculum is that one cannot predict in advance what kind of problems or questions will emerge, nor what kind of topics will be explored along the way. Nor can it be determined in advance to what degree such thinking needs to conform to pre-determined 'knowledge competencies', nor predict a final stage of development (Allman, 1981:8).

Intellectually, adults have different needs from children when it comes to learning (Hartree, 1984; Holmes and Abington-Cooper, 2000; McGrath, 2009). Adult learning requires of learners to explore more 'why' questions, and teaching methods can range from expository methods (didactics) where the lecturer organises the content, to direction methods where the topic is predetermined but the content is developed through group methods to discovery methods where the exact nature of the learning is not known beforehand (Allman, 1981:38). The important thing to note is that with adult learning, the approach and content should not be (pre) determined exclusively by one person (the lecturer) but needs to be negotiated in context, else it estranges the learner from the process.

> "When teachers in adult education decide *what* is to be learned and *how* to *structure* or organise the learning process, they will have alienated the adult learners from a very important aspect of the total learning process" (Allman, 1981:13).

Therefore, even though the educator needs to be sensitive to the stage of development that the learner is in (and with adults an andragogic approach needs to be favoured), it is more important to negotiate an approach than to impose one. On the contrary, however, students who have been conditioned in a system of didactic education may fail to see the value of independent thought and free structure and will need to be convinced by the educator that this approach will be of value in the long term.

VIII.3.x Ways of knowing

From the data, 'Way' emerges as an overarching concept that does not refer to a particular way to get somewhere, but to the many ways and means for doing things. 'Ways and means' refer to "the methods and resources for accomplishing some purpose" (ways and means in L-D, 2017). The kinds of ways (114/321 references) that the students referred to in the context of 'How' was 'ways to teach', 'ways to learn',

'ways to think', 'ways to see', 'ways to know', 'ways to ensure', 'ways to approach' and 'ways to behave' and 'ways of life'.

> I thought that this was a good **way** of making sure that I not only was on course with my assignment, but also that I was doing the right work. (C1_EJVW)

> The **way** he approached this module was to introduce us to how the working environment is, how they expect you to know how to accomplish a task without direction. (C4_RM)

> But then as time passed by I realised that we were reflecting in order to see how we have grown throughout this course and how our **way** of thinking has evolved. (C4_SP)

> This was also a **way** our lecturer could see how we have grown and changed in terms of the **way** we think compared to how we thought when doing our previous assignments. (C4_SP)

The concepts here that the students refer to are 'different ways', 'same way', 'similar way', 'another way', 'my way', some way', 'your way' or 'on the way'. The precedent of way is an approach or a way to think and see the world. The consequence of 'way' is work, completed tasks, and knowledge of the best ways to do things. The sequence of 'way' is formed as:

Seeing>thinking>approach>***way***>completion>achievement>knowledge

The most significant ways that the students reflected on were 'ways to think', 'ways to see', 'ways to know', 'ways to teach' and 'ways to learn', 'ways to research' and 'ways to reflect', 'ways to behave', ways to live'. 'Ways to see' were discussed in Q1. 'Ways to see' in Q2. 'Ways to know' in Q3. Ways to teach, learn, research and reflect will be examined in Q4 and Ways to behave and live in Q5. More importantly is to establish that 'Way' belongs to the overarching concept of forming a course. As such, a few quotes will be examined in terms of the way that the course was formed.

> The **way** in which the education system is designed is no different to a bread factory where the baker puts in ingredients and certain heat on the oven so as to produce whatever they feel like. (C4_KM)

> All these questions kept whirling in my mind, but the truth of the fact is that the best **way** to learn something is to teach yourself and that thing has to be something which you like, truly believe in and stand by it because it is suitable according to the one's perspective of life. (C4_KM)

> The research process was a very new and unfamiliar **way** of completing a task and guidance was necessary to assist the process operated efficiently and goal determined. Guidance is given to student researchers through interactions from the lectures, direction and advice was given on what to research and how to research. (C4_TLT)

> Nothing could have prepared me for this. I've had to be the strongest I have ever been to date and just force my **way** through it. This kind of research is challenging on its own when you are inexperienced, coupled with the added stresses and new-found responsibilities can feel crippling. I just kept telling myself that there are people who have been through worse and achieved more so there must be a **way**. (C3_MVD)

Fundamentally, the term '*way*' answers the question in which direction to head, or which course of action to take, and is reflexive in nature as it also refers to the way or the path that we're on. This is the thesis that Aristotle analyses in the Topics, and refers to what is the topic or subject that we are referring to. This concept is established by the term 'in which way'. It refers to the concept of 'ways and means, referring to "the methods and resources for accomplishing some purpose"[131]. In this way, 'way' encapsulates the essence of the term 'How' by identifying the different ways in which we think, reason or do things. Apparently not "all roads lead to Rome"[132], or as they say "If you don't know where you're going, any road will take you there" (Harrison, G.)[133].

VIII.3.xi In Which Way

In describing the choice between options, the students used the term 'in which way' or the 'way in which' more frequently. 'Which' is not originally one of the elements of circumstances, however it is listed as an interrogative pronoun together with 'what' (Interrogative_word Wikipedia, 2017). When 'which' is used, it refers to the choice of a defined number of options i.e. "which colour shoes should I wear with this dress – blue or black?" [134]1-10)[cxxiii]. Fundamentally, however, 'which way' is a process of identifying or selecting those options or choices that are similar or related, and then

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[131] http://www.thefreedictionary.com/ways+and+means
[132] Ascribed to de Lille (1175) in https://en.wiktionary.org/wiki/all_roads_lead_to_Rome
[133] Attributed to George Harrison (http://aliceiseverywhere.com/george-harrison-cheshire-cat/) as paraphrased from the Alice in Wonderland exchange between Cheshire Cat and Alice (https://en.wikipedia.org/wiki/Any_Road)
[134] See http://www.pearsonlongman.com/ae/azar/grammar_ex/message_board/archive/articles/00052.htm

choosing which one is best suited for the task at hand. This is the essence of practical wisdom or phronesis. As Aristotle outlines in the Topics.

> "The question ***which*** is the more desirable, or the better, of two or more things, should be examined upon the following lines: only first of all it must be clearly laid down that the inquiry we are making concerns not things that are widely divergent and that exhibit great differences from one another (for nobody raises any doubt whether happiness or wealth is more desirable), but things that are nearly related and about which we commonly discuss for which of the two we ought rather to vote, because we do not see any advantage on either side as compared with the other" (Aristotle, Top, 116a).

If one refers to the shoe example, what Aristotle is referring to here is what we call 'comparing apples with apples'. When the term 'in what way' is used, it refers to an open number of choices, but still choices of the same thing, i.e. apples or pears as fruit to buy. If it is used as in which way the options are more limited yet similar. In terms of the students' choices, the interrogative 'In Which way' answers the question in terms of which direction we should proceed. This ultimately involves a choice or a decision to be made.

> When teaching this module, I think it's good to allow us to find our own **way** but I think it is important to be there in case the students do need direction on which **way** to go. And during class times I think it is important to speak to the whole class about what needs to be done and what the plans are for the project as it put a lot of strain on the group leaders to inform their group on everything when we ourselves may not understand everything. I think that is something which is important when teaching another class. (C4_CC)

In the Ethics, Aristotle asks the question in terms of ends and means. It is not for the educator to question whether he is to teach, nor for the doctor to heal. What is at question is how or which means we need to follow in order to achieve these ends.

> "They assume the end and consider *how* and *by what* means it is to be attained" (Aristotle, NE 1112b8-20).

In this case also, it is not sufficient to know, for example, that antibiotics would cure a bacterial infection, but more appropriately which strain of antibiotics will cure Socrates' throat infection. No amount of consultation on books or theories will help the doctor to cure the particular person in front of him. For the doctor does not treat the illness, but the person in front of him. The decision that the doctor needs to make

cannot be found in a book. He needs to 'diagnose' the patient in front of him. Once he has identified either the cause or the effect of the illness, then he may turn to theory.

> "For a doctor seems not even to study health in this way (theory), but the health of man, or perhaps rather the health of a particular man; it is individuals that he is healing" (NE, 1097a12-15).

Likewise, in the Ethics, Aristotle says that people try and be 'good' by reading books about being good. In the end, having a vast knowledge on the theory of being good does not make one good if you don't do anything about it.

> "But most people do not do these but take refuge in theory and think they are being philosophers and will become good in this way, behaving somewhat like patients who listen attentively to their doctors, but do none of the things they are ordered to do. As the latter will not be made well in body by such a course of treatment, the former will not be made well in soul by such a course of philosophy" (NE, 1105b12-17).

Would you allow a doctor to perform an operation on you if he was only trained through reading books? Of course not. Yet in the same way we are expecting our students to become practitioners by giving them textbooks to read[cxxiv]. A course of books will not make the student any wiser to learn in which situations he needs to use it. Although the emphasis in education is moving towards 'application', especially in terms of higher order thinking, the results are not the same in applying something to a hypothetical situation as opposed to a real-world one.

> If this was to be taught in theory, I would have missed out on learning about the pressures, emotions, struggles and fun involved with conducting a survey. But the fact that we actually conducted the survey and felt what it is like to be involved in a huge research project made me learn the true side of the real world hence I have an idea of how the **real world** operates like. (C4_KM)

This resulted in numerous benefits, other than learning the curriculum.

> This course benefitted me in other **ways** that I never expected, it helped me learn more about myself, how to work with others, how to cope with situations, the mindset to have, it contributed towards myself growth. It served as a means for me to learn many realities of life that I consider priceless. I now take a different approach to life including my daily tasks; I am much more open minded. This module also helped me develop many leadership skills and qualities. (C4_MH)

> This module has definitely prepared me for a greater world out there. It opened my eyes, allowing me to be myself and not be forced into following conventional methods in life. Mr. Uys has taught me a great lesson in life which has changed the **way** I think and see the world. (C4_SBP)

From this approach, the students gained their independence and were prepared to face life.

VIII.3.xii A module for life

The definition for 'module' derived from the students' reflections is

> The module provides us (students) with the tools and tasks that we need to develop our own abilities to think about and understand things.

The kinds of 'modules' that the students referred to are IFS352 (the module code), ALB, ACF and IRF. The precedent of module is journey, keeping track, being taught, prompted, told, required, expected and assigned. The consequences are learning, experiences, abilities, question acting, research, tools, easier, understand, not for me, worked hard. The sequence that comes from this is as follows:

> Tools>taught>***module***>think>work>hard>ability>experience

Essentially what the students were saying is that this module prepares them for life.

> I have realised and learnt a lot from this module from life skills to skills associated to the field of IS Research. (C4_MH)

> This was no easy module but along the way I have learnt a lot about myself and who I want to be and where I want to go in **life**. (C4_CC)

> Now when I look back I realise this was a module I needed for **life**. When you expect things to be a certain way sometimes you feel lost because you are not use to the way that things are done, this is how I felt in the beginning of this module and all the way to then end, I was always on my toes, never knowing what to expect and what was next but this is **life** and this was very different to any other module taught at the university we never learnt book knowledge but **life** knowledge. (C4_CC)

They also identified a greater purpose from this module, which was not just being consumers of knowledge, but producers of knowledge.

> Thus, I feel by doing this module, gathering information, researching our topics and publishing our final paper we are indeed contributing to the greater good of society and academics, "Ubuntu". We are filling the gaps in the knowledge and

> the hard work that we are currently doing will in future help so many others whether in the field or not. (C4_CC)

Essentially what this indicates, and the question that it answers, is that the students truly believe that this module has allowed them to continue with the rest of their lives with the full knowledge that they will be able to understand what they need to do, through a process of research and reflection.

VIII.3.xiii Summary of developing self-directed learners

Developing self-directed learners is often related to a process of guiding than teaching. The metaphor of education or course as a journey is not only appropriate in education but also how students referred to the course. This was evident in terms such as guiding, directing, keeping on track, taking steps, knowing which path, what stage and in which way. Guiding in terms of the student's reflections refers to "A way to learn how to deal with the unfamiliar". In my course however, students expressed a clear concern that there was a lack of guidance, although not all of them felt this way. Students recognised that this lack of guidance trains them into learning what they can do for themselves without being pushed into a specific direction. This meant that they had to take their own initiative for their learning. What they did not realise was that my epistemology of 'learning by doing' meant that they had to learn by doing and not by instruction. Through a process of minimal instruction or guidance, the students were led through a process of doing tasks and assignments that culminated in them learning how to do them.

In the strictest sense, I was instructing students *what* to do, but not guiding them on *how* to do it. This approach has more affinity with constructivist learning theories than with instructivism. In such an environment, the educator's role is to provide leaners with a "stimulating experience" and then allow them to "pose their own questions" and "explore new knowledge for themselves" (*constructivist* in Wallace, 2015). In some ways, I was conceptualising the course and the assignments, but not executing the projects. A more appropriate term for my teaching would be conduct, which in some ways refers to how I orchestrated the course, and in another how I behaved inside or outside the class. Neither was I coaching the students to become self-directed. The most important aspect of developing self-directed learners was through a process of assigning them tasks and then encouraging them along the journey of completing these tasks.

> We were given tasks and some form of guidance, yet we were **encouraged** to learn for ourselves (C4_MH)

There are concerns with the minimally guided approach, but much like a tourist, students need to work harder in exploring a topic if they have to research it for themselves, than if they have been provided with the results of such research (i.e. with a tour guide or book).

The students followed a 'deep' approach to learning by actively engaging with the learning material. The students see 'approach' as *'how they need to go about doing things'* which refers more to the concept of 'method' than it does to 'direction'. The thing that they needed to approach was "to understand and to learn how to research and how to benefit from each process" (C4_LM). This approach also helped them in their personal lives as well as in other courses. This approach also provided them with their own 'sense of direction' i.e. they became self-directed through taking responsibility for their own learning. Fundamentally, therefore, this approach to learning taught students how to find their own way. The outcome of this approach was that students learned how to do research as well as a number of other skills. More importantly they also learned how to do this themselves whilst learning to critically reflect on things, question dogmatic beliefs, be creative and take their own initiative.

In the process, students learned to find their own way. For the students, direction meant "guidance or learning on how to approach things". Direction came from their own 'sense of direction', from being 'pointed in a direction', or by 'narrowing things down'. The kinds of questions that students raised about direction were 'how to approach things', 'what should be done', or 'where one should be going'. In their usage, direction comes after a 'sense' and 'focus' and leads to 'an approach', 'finding a way' or a 'footing' or personal 'gain'.

Having a lack of direction seems to be what prompted students to find their own way. Two related terms are surfaced when it comes to finding direction, namely track and line. Line refers to "ordering one's thoughts into a coherent sequence that flows" and track to "remaining on course in order to reach one's destination". These concepts are supported by related concepts such as having an 'outline', 'guideline' or a clear track or being 'in-line' and having a 'dead-line'. With my teaching approach, students developed the ability to form their own 'line of reasoning', 'direction' and 'structure'; whether it was for their assignments or for the course or in terms of even in what

direction they were heading with their own lives. If these are provided to them by the educator or the educational system, it removes the responsibility from the student to find his/her own way and hence his/her independence.

An important catalyst for students finding their own direction is 'action' or taking the first step. For students, steps are "a **way** to highlight the **direction** one needs to take in doing something". The subject of steps involves learning which steps to take, or what steps are involved, or what is important to them. Taking the required steps or the identifying right steps allows the students to find their way, learn about how to conduct research or write assignments, and be one step ahead of the game. By determining which steps to follow for themselves, resulted in a set of 'step by step' instructions, a tutorial or even a method on how to do things. This started them on the 'right path'.

Knowing which path to take and what their destination is allows the students a clear sense of direction. For them a path refers to "the actual route to follow in order to reach your destination". The need for a path starts out from things being vague or undefined. The solution is provided through planning a path or route for themselves. Interestingly, students refer to the 'path' in terms of their broader aims in life, i.e. a career path or a path in life. This is expressed by (C4_KM) as finding his own sense of self-identity.

Stage is a broader concept than path. Students refer to 'stage' as being a stage of their lives, their careers, education, the course, the assignment or even their stage of learning. By doing the activities themselves, and through a process of reflection, the students inductively arrived at the stages that were required in the process. The stage of students' lives has specific implications for developing self-directed learners. It appears as if a mature adult is better disposed to self-directed learning than a child, as they have different thought processes (Allman, 1981:6). Adult learning requires of learners to explore more 'why' questions, and teaching methods can range from expository methods (didactics) where the lecturer organises the content, to direction methods where the topic is predetermined but the content is developed through group methods to discovery methods where the exact nature of the learning is not known beforehand (Allman, 1981:38).

In this sense, it became important for students to find their own way. Way not only refers to which way students need to head (i.e. where), but also in which way (i.e.

How). Fundamentally, however, 'which way' is a process of identifying or selecting those options or choices that are similar or related, and then choosing which one is best suited for the task at hand. This is the essence of practical wisdom and reasoned choice.

> "The module provides us (students) with the tools and tasks that we need to develop our own abilities to think about and understand things" (C4_SBP).

The students truly believed that this module has allowed them to continue with the rest of their lives with the full knowledge that they will be able to understand what they need to do, through a process of research and reflection. In other words, they became self-directed adult learners. In conclusion, by encouraging students to find their own direction, it developed their own self-directing abilities. In this way, the course became a module for life.

VIII.4 Teaching critical reflection

The research question which this section aims to answer was the second question that I asked regarding my teaching in March 2011, i.e. RQ2 *"How do I teach students to be critically reflective?"*. The answer to the above question lies in firstly establishing whether I succeeded in teaching the students to be critically reflective, and then secondly to evaluate how I went about it. One of the students from year one even responded to the question that I had verbalised to her at that stage in her course reflection:

> In terms of the question you asked about whether or not you can teach a student to **critically reflect**? I feel that a **critical reflection** will go as far as the person is willing to go, and will be as **critical** as that person thinks, therefore if one doesn't spend time thinking about things, or taking time to look at deeper feelings on an issue, they would struggle to reflect. This is just my thoughts about the process. I have however learnt in this process to allow myself to think further, look at the bigger picture, however at the same time, take note of detail and really test myself and how far I am willing to go. (C2_NL)

Based on Kember's (2008) coding scheme the following reflections show evidence of 'critical reflection[135]. See Appendix XII.4.vii Reflective practice for the extracted quotes and empirical observations.

> **From week thirteen:** That is when I wrote my first real **reflection** on a personal note and realized the true value which this module has given me, self-identity and realizing how much I can learn for myself without any instructor. (C4_KM)

> IFS 352 is a life lesson, one which its skills live with you forever in life. Unlike other modules where you are taught information which expires, philosophy enables you to keep on believing in your own mind set and enables **reflection** upon one's self. (C4_KM)

These quotations indicate that some form of critical reflection had occurred in some students, the next question would be what this reflection implies.

VIII.4.i What reflection means

The analysis of the students' reflections (Cycle 2) identified in excess of 583 references to the term 'reflection'. The approximately 100 references of reflection' in the context of 'How' were then further analysed (Cycle 3) to reveal the following scenario. The subject of reflection, i.e. the things that students reflected about, are their emotions, thoughts, questions, others, things, the course, and their experiences[136].

> "We may find that **reflection** is a structural foundation for adult cognitive development which serves a function similar to processes such as concept formation and notions of space, time and number which are the most important concepts of the child's developing thought-structure" (Allman, 1981:8).

Reflections for the students are preceded by the terms think, skill, actual, way and provides. Reflections allow students to improve, clarify, critical learning, progressive, and "*a learning tool that provides knowledge of self in the context of society*".

> I never **reflected** in a critical manner in my life before. This helped as I now had an exact account of my progress and where I was headed. **Reflecting** is not

[135] "To classify a piece of writing as showing critical reflection, there should be evidence of a change in perspective over a fundamental belief. There is likely to be evidence of the process taking time" (Kember et al., 2008:375).
[136] I'm not sure why Kember (2008) raised the concern that "The subject matter of reflection is an ill-defined problem".

> merely just writing in a diary, there were methods I learnt as to how to do it. I feel it is necessary to carry on **reflecting** throughout my life, as it has helped me express my emotions and thoughts. (C4_CJR)

> Walter played a key role in assisting me to find out the cause of these problems by introducing his philosophies and perceptions that concern the root of these problems. The idea of stepping back, **reflecting** and unwinding our taught beliefs and examining the extent to which we are being continuously indoctrinated by society is crucial in making a positive change around and influencing our lives positively as well as enabling us to actually "start living our own lives with our own thoughts".(C4_MH)

From the coded reflections the following sequence ensued:

way>emotions>think>***reflect***>make sense>clarity>knowledge

Students indicated that the process of reflection gave them the opportunity to find out where they were in the process of learning. The definition that was arrived at 'in vivo' is

Reflection is the process of making sense of things by thinking about them.

As the following quotes illustrate.

> **Reflection** is the best ever way to find out how progressive you are in any particular activity that has been done. We do **reflection** about our past to find the current standing. Without **reflection** it is not easy to find the actual knowledge about the lesson you learnt. (C4_NNM)

One of the students in the third year even did his own exploring of reflective practice and came up with the following reflection.

> Race (2002)[137] mentioned: 'The act of **reflecting** is one which causes us to make sense of what we've learned, why we learned it, and how that particular increment of learning took place". Moreover, **reflection** is about linking one increment of learning to the wider perspective of learning - heading towards seeing the bigger picture. (C4_MH)

This indicates both the usefulness of these elements in terms of reflective framework, and also that they are used in practice. Moreover, it was also a set of these questions that I provided the students with to reflect on in terms of their assignments, as can be seen from the following quote.

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[137] http://escalate.ac.uk/resources/reflection/08.html

> This paper personally evaluates and provides a **reflection** of my enrolment in IFS352 class. The **reflection** is based on the activities that I carried out throughout enrolling in IFS352 class/course, what I learnt, when, where, with, how, who was involved in my learning, why and a conclusion. (C4_SM)

Therefore, not only is the reflective practice in this case shown as being what subjects students reflect on, where reflection comes from and its consequences, it also was used as an effective tool in the course to allow students to make sense of their experiences. Lastly, the framework that was provided to the students as well as the experience that they went through proved to be effective in engendering at least some level of critical reflection in the students.

VIII.4.ii Reflecting on the experience

All the terms containing the term reflection[138] were coded in the corpus of data. These terms were then examined in the context of 'How' and the 100 key sentences containing the term were extracted. These were then coded to look at their precedence and consequence and arranged according to the five categories (Cycle 2).

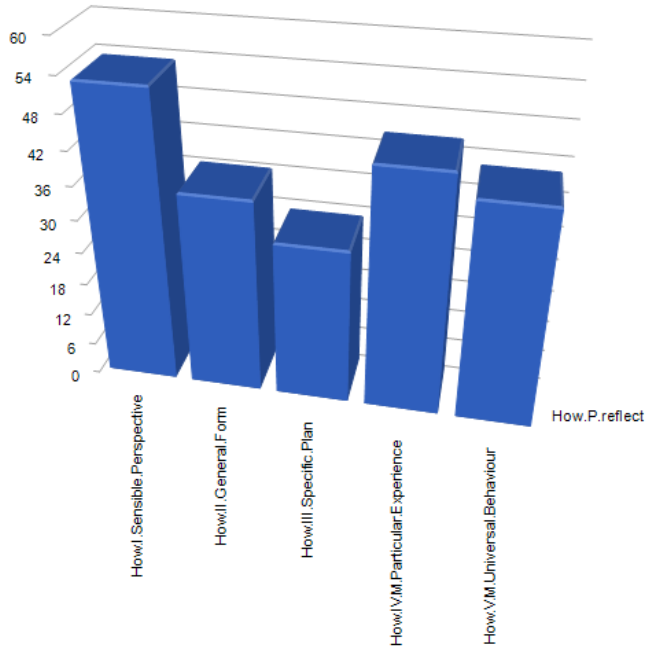

Figure VIII.2 How students reflect

[138] This includes the terms reflect, reflected, reflecting, reflection, reflections, reflective, reflects

An extract of these sentences that refer specifically to How students reflected was made[139], and then placed into their respective categories (Cycle 3). These were tabulated in the Appendix under *XII.4.vii Reflective practice* .

Table VIII.1 Becoming a critically reflective practitioner

Cat.	Empirical statements of 'How' students 'reflect'	Topic
Perceptions	RP1. The practical nature of the class helped the students to see how enjoyable it was.	Enjoyable
	RP2. Reflection gave the students clarity on what they were discussing in their teams.	Clarity
	RP3.1 Reflecting over time allowed students to see how their thinking has evolved.	Thoughts
	RP3.2 Reflections allow the lecturer to see how the student's thinking evolves.	Thoughts
	RP4. Reflection allows one to notice what has happened.	Notice
	RP5 Reflection allows one to gain a wider perspective on a learning situation	Perspective
Form	RP6. The aim of documenting is to reflect on the research project. (Why are we documenting)	Aim
	RP7. The objective of the document is to reflect on the module. (What the document is used/useful for)	Objective
Plans	RP8.1 Reflection follows a specified procedure by asking the questions what, when, where, with, how, who and why of any situation.	Procedure
	RP8.2 Reflection allows one to find how {unscripted, improvised, unplanned, unrehearsed} the course was.	Unplanned
	RP8.2.a Reflection is a procedure that allows one to find the reason for one's worries.	Approach
	RP9. Reflection is not confined to this module only as it is an approach that other lecturers use.	Assess
	RP10.1 Reflection allows one to assess one's own abilities without the aid of the curriculum or lecturers.	Curriculum
	RP10.2 Reflection should be introduced earlier in the curriculum.	Life-changing
	RP10.3 The class was life-changing.	
Experiences	RP11.1 Reflection allows students to think beyond their assignment in order to identify the positives and negatives	Think beyond experience
	RP11.2 Reflections allow students to draw out what they learned from their experiences.	Learned
	RP11.3 Reflections allow students to identify what aspects can be improved.	Identify improvements
	RP11.4. Reflections allow students to know what they gained from experiences.	Know what they gained
	RP11.5 Reflections are a way to learn.	
Knowledge/Why	RP13.1 Reflections is the best way to find out how far one has progressed.	Progress
	RP13.3. Reflections allow one to determine where one is heading as well as how far one has progressed.	
	RP13.2 Without reflection one cannot know what you have learnt.	Knowledge
	RP13.2.a Reflections allow one to know what one has learnt.	
	RP14.1 Reflections allows one to evaluate one's enrolment decisions.	Evaluate
	RP14.2. Reflections are based on the circumstances of activities (the what, when, where, with, how, and who was involved).	Basis (of knowledge)
	RP15. Reflections can be initiated by answering interrogative questions such as who, what, when, where, why and how (Race 2002).	Initiated by questions

[139] 583 occurrences of the term *reflect*

From this table the previous summary and abbreviated causes for the students' reflections can be formulated in the particular sequence that they occurred. The key quotes were extracted into a spreadsheet and included in each category. These quotes were then coded in terms of the topic or subject of reference (Cycle 3 coding). From these, empirical observation statements were derived (Cycle 4). In terms of the students' reflections[140], reflections are 'useful or helpful' as it allows them to grow and confirm their learning experiences as well as to contribute to others and have 'real' experiences. The kinds of activities (from module) that provided the students with these experiences are the research, assignment, survey, social, and teaching. The following quote illustrates this sequence.

> This way of teaching was a different **experience** for me because from primary school I was used to getting direction from my teachers from them guiding me along the way and I never needed to do as much research besides research on projects because the way you needed to do the assignment or what you needed to do was told to you. For the most part I think it helped me and opened my eyes to how things should be done and showed me that you can't be spoon fed all the time but sometimes it was frustrating that we needed to do research on everything and weren't given direction to some things that we maybe should have, but I'm glad in way to have gone through the **experience**. (C4_NCC)

Also refer to *Table XII.18 Cause and Effect of the* Experiences for a number of other quotes that demonstrate these experiences in terms of the four causes (material, formal, efficient and final causes). An observation by one of the students, supports Dewey's (1897) theory that reflection is a necessary part of the experience in order to make sense of it.

> I'm really glad Mr Uys asked for a **reflection** to accompany the final paper/assignment. It allowed me think beyond the final product/assignment, so that I can identify the positives, negatives, and draw out what I learnt from the whole experience. In addition, the **reflection** helped me identify which aspects I can improve on, and what I can or should have done better. As I was busy with my **reflection**, I realised, "what's the point of doing an assignment or writing a paper, without reflecting on the whole experience?" How will I know what I've gained from this whole experience if I do not reflect?" As a result, I feel that the **reflection** is a way of learning. (C3_MS)

[140] 56 references to **experiences** in terms of reflections

Without reflection, experience is meaningless as it passes from memory very quickly, and without experience one does not have anything to reflect on, which means that thought remains mere theorising. When reflecting on their experiences, students were asked to use the elements of circumstances.

> Secondly it will include; "What" I **experienced** and learned in the module, "When" my **experience** occurred as well as "Where" they occurred. Thirdly, this presentation will include a critical analysis into; "With" what I achieved my learning outcomes, "How" I achieved these experiences and learning outcomes, as well as "How" and "Why" I achieved during the course of the module. (C4_NNN)

Defining the kind of **experiential learning** that the students experienced as *"Personal growth and learning"* also positions the kind of teaching in the 'Humanist Tradition', where the aim is the individual 'self-actualisation' (Saddington, 2000). Self-actualisation is described as "helping the person become the best he is able to become" (Maslow and Rogers in Saddington, 2000:4). I quote broadly from Saddington (2000:4) in order to emphasise the particular experiences that the students had as explained by educational philosophy.

> "In this tradition the teacher acts as a "facilitator" and "enabler" of the learner's growth. Learning occurs through group interaction, participation, experimentation and discovery. The responsibility for learning is placed on the learner who is at the centre of the experience. Learner freedom and autonomy are linked to the concept of self-directed learning in the drive towards personal liberation and enrichment. The focus is on personal integration and psychological development" (Saddington, 2000:4)

Even though I did not know at the time that this was the philosophy that I was exhibiting in the course, I do know it now, which goes to show that I was able to educate myself on educational philosophies without attending a course. The problem with this approach (as Saddington recognises), is that because the emphasis of such practices is on "personal discovery and experimentation", empirical evidence is limited. Here I represent a number of reflections of students exhibiting this phenomenon of self-discovery.

> The main reason for being part of this researching activity *other than the fact that our lecturer expected us to take part in*; was to gain some form of knowledge and understanding of the whole **experience**. And to **experience** how it really

> feels to be a researcher and write down my own ideas as a technical report. (C1_PM)

What is disconcerting for me however is that this catalyst for self-discovery, i.e. the course itself, is not self-initiated. As one of the students indicated, one of the main reasons why he is participating in this course is because the lecturer expected him to. There are other such quotes, but it can generally be reasoned that this is the case for all the students. This raises questions about how authentic such learning experiences are if they are coerced and directs me to the philosophies of the radicalist position, which does not consider education to be neutral, and can only be understood in terms of its circumstances. The main concern from the radicalist position is that education is a form of social control and can lead to domination. It is therefore the role of the educator to frame the learner's life experience in the context of such an educational system.

> "As learners interrogate their own experience so they are able to reinterpret it and understand the societal context within which they find themselves" (Saddington, 2000).
> "The empowerment of the learner in this tradition fits with the need to encourage learners to become more self-reflective and critical in understanding their own life experience" (Saddington, 2000).

Likewise, within the humanist tradition, empirical examples of the radicalist position are scarce because educators operate inside "stable" institutional structures where radical change is unlikely. Again as in this case I present such change and 'conscientization' as Freire (Lloyd, 1972) calls it, in an empirical situation.

The problem that I experienced in practice with implementing such a pedagogy is that it conflicts with institutional norms such as planning, course outlines, keeping to deadlines, keeping order etc. a concern that led me to not being appointed at the institution after the expiry of my contract period.

VIII.4.iii Process of action-reflection

The process[141] that I introduced to the students was a process of action and reflection, i.e. I gave them an assignment and I asked them to reflect on the experience in line with experiential learning (Kolb and Kolb, 2005). The process of Experiential Learning can best be described as a repeating cycle of

Action → **Reflection** → Conceptualisation → Application

Batista (Batista and Corney, 2012) provides a simpler version of such a process as follows:

Act → What Happened? → So What? → Now What?

The value in this model is not so much in its theoretical complexity, but in its practical simplicity of acting and reflecting on one's actions. In the same way, I designed and implemented a specific sequence of actions in the classroom and reflected on the effectiveness of such action. In much the same way, the students were asked to act (do an assignment) and reflect on their actions. Later in the course (in 2012) I provided them with a reflective framework based on Aristotle's elements of circumstances.

> This has been done by following a specified **procedure**. The following questions were asked to find results; what, when, where, with, how, who, why, and the conclusion will be provided at the end. (C4_MM)

The procedure also assisted the students in reflecting on their thoughts and decision-making processes.

> I think that this was a great way in which I individually could go back and evaluate how far I have come as a person. This was such an important part of the research in that it helped me to understand my own thought **process** and critically evaluate myself as a learning student as well as evaluate the activities and module that I was involved in. (C4_NM)

> Life and its challenges constitute an on-going **process** – we choose what to become or do. CHOICE is what it boils down to. (C4_TLC)

[141] Process, like procedure can either refer to a course, i.e. *"a usually fixed or ordered series of actions or events leading to a result"*, a progression i.e. "forward movement in time or place" (Process M-W, 2017).

This is a reflexive process that can be referred to as double-loop learning (Argyris and Schön, 1996; Smith, 2013)

VIII.4.iv Student perspectives

Students used the term 'perspective' mainly with reference to taking a broader or a different view on things[142].

> Instead this module has taught me as an IT student on how to be the best IS researcher. Making me have a broader **perspective** on what it means to be a Philosophy Researcher (C1_LPM)

> I had constant contact with other students, my lecturer and also anyone else who could help broaden my **perspective** on topics I would enquire about. (C4_SP)

This definition differs slightly from the dictionary definition which refers to "a way of looking at or thinking about something" OR "the interrelation in which a subject or its parts are mentally viewed" OR "all that can be seen from a certain point" (M-W, 2017 Perspective). The way that I taught the students, the research that they did, their interaction with their peers and the practising of 'critical reflections allowed them to have a different or broader view on the course (and research) than at the start. This process can be illustrated by the following sequence and the ensuing statements.

perspective→thought→clarity→notice→see→enjoyable→appreciate

The wider ***perspective***[143] that the students gained by reflecting on the course allowed them to see the bigger picture.

> Moreover, reflection is about linking one increment of learning to the wider **perspective** of learning - heading towards seeing the bigger picture. (C4_MH)

The bigger picture ***showed***[144] them what they had endured during the course, how they had grown and how their thinking had evolved.

> A reflection is important as it helps you pay close **attention**[145] to what you have been doing and what you have endured along the way and how far you have come to be where you are. (C4_VN)

[142] 53 occurrences of reflection in relation to the terms coded to 'perceptions'
[143] 43 references to perspective or perspectives
[144] 125 references to show, showed, showing or shows
[145] 62 references to attention, attentions or attentively

This new way of ***thinking***[146], the research process and team discussions helped them to look back over time with more clarity and ***notice*** how enjoyable[147] it really was.

> Looking back into the researching process and team discussions, I was able to truly think about and reflect on what others were finding and his gave me more **clarity**[148]. (C4_LM)

This made them ***appreciate***[149] the practical nature of the course for making them who they had become (come to be where I am today).

> And the more I ponder over this theme, the more I appreciate where I am today. And this class really supported me to **see** things from a different angle by actually applying the skill of reflection. I honestly enjoyed Walter's classes as he brought application into classes rather than theory. (C4_ZA)

For Aristotle, the process of 'coming to be' signifies growth and change. The theory of causality is based on 'coming to be', so the question that one needs to answer is 'how did the students come to be who they are. The material cause answers the question: what are the grounds or basis of such change? The material answer is that the students have changed 'mainly' in terms of their thinking. This thinking has allowed them to look over the hardships and endurances and see the course for what it really was. A practical way for them to learn, grow and have fun.

VIII.4.v Format of the course

The dictionary definition for '*format*' refers to "the way in which the elements of something {as a work of art, courses, classes, or lessons} are {sized, arranged, or organized}". Naturally, the effect of such a process is a format or structure. Yet the process does not occur by itself, but as has been shown by the students, it refers to the process in which they structure or make sense of what is expected of them (cognitively) and thus find alternative ways in which to format their assignments or reports. The 'in vivo' definition that is derived from the students' reflections refer to format as

> The structuring of one's thoughts or ideas in order to form a clear plan for the assignment or report.

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[146] 603 references to think, thinking or thinks
[147] 183 references to enjoy, enjoyable, enjoyed, enjoying, enjoyment or enjoys
[148] 25 reference to clarity
[149] 15 references to appreciate, appreciated or appreciative

The operative words that the students used for the format of the course were format or formats (12/42), forming or formation (7/40), formed (16/40), inform, informed, informing (17/125) and finally information (114/379). Related terms to 'form' are way (321), technique (31), process (238), method (174) or conduct (149).

The need for a format by the students comes from students' being confused as to what to do, trying to figure out or interpret things, having questions or trying to do things. This leads them to developing a structure, criteria, order, standards or a plan for themselves so that they are able to form their assignments, questionnaires, findings or conclusions. This forms the following sequence:

confusion>figure_out>queries>***format***>*structure*>criteria>plan>informed

This sequence can be illustrated by the following quotes:

> Capturing the data also proved to be a surprising issue to the group as there was *confusion* to begin with on the **format** in which to capture the data and relevant *deadlines*, but in the grander scheme of things that proved to be a small issue toward the end of the project. (C4_NM)

> Lastly, the *structure* and **format** of the assignment had to be developed. Once again, the internet had the quickest answer. The main document (PDF **format**) on how to do the methodology (Kotzé, 2007) was used a *guideline* for mainly, the research methodology, its layout and content. (C4_NM)

> This assignment also made me look at research projects differently to normal projects. It made me go *find out* about the various **formats**, methods and *structures* that should be used when you forming a research assignment. (C3_HM)

In this case, the students referred to format in five ways, e.g. as the grouping of students i.e. *forming* of groups/teams (C4_SM), the *form* that their research report or essay took (C3_HM, C4_LD), the *form* that the instruction or class took (C4_SM), the *forming* of a meaning through synthesising information (C4_MM) or the *form* of frequent reflections that the students were required to do (C4_RM)[150]. *Form* as used by the students, refer to the shape or structure that the course and their assignments took[151]. These can be summarised as follows:

[150] See Table XII.17 Elements of a critically reflective practice in IS under Q2.1 form.
[151] See Table XII.17 Elements of a critically reflective practice in IS under *form, shape, structure and arrangement*.

- Forming of students into groups
- Encouraging students to reflect continuously
- Instructing students how to do tasks and assignments
- Students learning how to form their assignments
- Students shaping meaning from the tasks and assignments

In generic terms therefore, the students defined the 'form' of the course as 'how' the course was 'structured' or 'organised'. Organisation (12/24) is defined as '*the arrangement of some activity or event in order to ensure that things run smoothly'*. The closest definition by M-W for this kind of organisation is to *"set up an administrative structure"*, *"to put into a particular arrangement"* or to *"to work out the details of (something) in advance"* (Organise in M-W, 2017)[152]. From the students' reflections, it appears as if they were under the impression that it was the responsibility of the educator to organise the course or activities. Of course, this can also be inferred from academic policy and rules as well as general academic practice. As such, the 'organisation' of education is clearly the responsibility of higher education practitioners and administrators, or so it may seem.

This, however, was not the case in my course, as I expected the students to take responsibility to organise things themselves rather than me telling them what to do. This was done by establishing a project structure through arranging students into groups[153], each with a group leader, and an overall management team that took responsibility for the day to day operations. In year one the project was voluntary, and this led to a lack of motivation for the students to organise themselves.

> The first few meetings were difficult to **organise** because lack of participation. As a project on the side, there was no motivation with regards to the progression of the project. (C2_MG)

After discussion with the HoD, we agreed that the students could do the project instead of their 'literature review' as their examination assignment for the module. This motivated them to organise themselves, because it was for marks. The kinds of things that the students 'organised' were meetings, assignments, groups, stakeholders

[152] Related words are plan,prepare,project,scheme,shape,strategize; aspects which are examined in the section under planning.
[153] This term links with groups and group work/activities.

and their lives. These things refer to 'what' they organised and not to 'how' they organised things.

> I was chosen to be the group leader of my group and I put it upon myself to always keep my group **organised**, informed and on time for all the tasks that had to be submitted. (C4_QN)

> I had to make sure that the groups are **organised** and most importantly ensure that my group had all the correct information. (C4_LL)

By appointing group leaders and secretaries in each group, it instilled a sense of responsibility in the students, even motivating them to do additional work or research to share with their groups.

> I tried to get examples of mobile surveys I could share with my group as well help **organise** and go through with our survey day event. (C4_SP)

> I have also read literature reviews and constructed questions to put in our survey, seen to snacks, sent out mass emails, tried to get examples of mobile surveys I could share with my group as well help **organise** and go through with our survey day event. (C4_SP)

For these students, 'organisation' came from a sense of responsibility (C4_MM), about making sure about things (C4_LL) and supporting their individual beliefs about how things should be done properly (C4_LL).

> Most of the other lessons came from being in the management team of the exam assignment, I had to learn to **organise** my life so that everything was done in time, I also had to learn patience with everybody, but most importantly it taught me how to work better with others. (C4_LLL)

In this way, 'organisation appears to be as a result of the tasks and group activities that I assigned, whereas students who were doing individual research did not experience the same pressures or learning opportunities. The reflections indicate that these students were more concerned with organising their own research assignments.

VIII.4.vi Classroom Management

Organisation in the classroom is called 'classroom management'. Classroom management is seen as a critical aspect of teaching success as *"effective teaching and learning cannot take place in a poorly managed classroom"* (Grapragasem et al., 2015:139). The kinds of activities that need to be managed are *"making a daily schedule to manage classroom activities, setting goals for learning activities,*

prioritizing student activities, setting time limit for students to complete their task or assignments and adhering to activities stated in the respective unit program calendar" (Grapragasem et al., 2015:139).

Effective classroom management includes four aspects namely 'content management'. 'conduct management', 'covenant management', and 'time management' (Grapragasem et al., 2015:140)[cxxv]. It is well know that students in HEI are adult learners who *"have the potential to be self-directed…(and)…are able to utilize their life and work experiences as vital resources in their learning process"* (Grapragasem et al., 2015:139). This contradicts the common practice of 'classroom management' where the student takes little or no responsibility in organising or scheduling of activities in the classroom. This is akin to the lecturer preparing a meal, laying the table and having the students sit down to eat, yet expecting them subsequently in their careers to be able to do these tasks and activities themselves.

What is clear however is that a well-organised classroom is no defence against challenges to authority by students, general apathy or negativity or lack of agency by educators (Christie, 1998:290). One can go through the motions of providing students with structure, yet this makes no difference if these students lack their own structure or organisation or there is a deficiency in their in their own homes.

In this case, the apparent 'absence' of organisation by the educator led to students 'organising' themselves. In some instances, this resulted in major confusion, uncertainty, disarray, noisy classrooms and even complaints by the students that things were not organised at first. This is a difficult situation to manage in a higher education institution as there are latent fears about anarchy and unmanageable students and tacit perceptions that classrooms should be 'organised'. Contrarily, however, this is exactly what the students needed in this situation in order to learn how to organise themselves. By 'enforcing' a false sense of organisation in the classroom, the only person that learns how to organise is the lecturer. This takes the learning opportunity away from the students.

In this example, it was not that there was no organisation or dis-organisation. Things were just 'differently' organised. Instead of instructing the students on 'which' topics to learn, or even 'how' to do things, the course and my approach provided them with the 'why' and sometimes even the 'how' of doing things. In this way they developed their own 'how' and 'what'. This is in keeping with Nietzsche's statement

that one "He who has a *why* to live for can bear with almost any *how*" (Frankl, 1985:76). The why in this sense refers to a sense of purpose or motivation, the how refers to the way that they conduct or organise themselves.

From these observations it is clear that further research needs to be done on the abilities of students organising *themselves* in the classroom context and how the current educational practices enable/disable the self-organisation capabilities of students and how students' motivation to achieve good grades influences their learning practices[154]. Some contemporary theories that may be fruitful in this regard are self-efficacy theories (Bandura, 2001) and the concept of the flipped-classrooms (Thai, De Wever and Valcke, 2017).

From the educators' perspective, one needs to be careful not to do too much for the student or the course (read spoon feeding), and a fine balance needs to be maintained with a sharing of responsibilities between the student and the educator in terms of organisation of the classroom and activities. The current tendency to judge the quality of lecturing on how well the educator is organised may require revision as to its long-term debilitating effects of under-developing the students' abilities to organise themselves[155].

These reflections indicate that there is a difference between the lecturer and educator providing the form or structure of the course, as opposed to the student developing their own structures. This differentiates whether the learning or instruction can be considered to be 'formal' or 'informal'. Conversely it should be differentiated whether this learning is intentional (what Aristotle refers to as voluntary) or unintentional (an aspect that may be referred to as intended or unintended consequences).

VIII.4.vii The structure of the course

The way that the course was structured was also an important aspect of the form of the course. Structuring of the course refers to the organisation or arrangement of 'structures' (124). Etymologically, 'structure' forms the root of the word 'instruction'

[154] Links in Nvivo with 'abilities' or 'behaviour' as well as how 'why' influences' or impacts on 'how' in terms of organization.
[155] See the SAU student evaluation criteria in Table XII.14 SAU EMS Graduate Attributes Student module evaluation form.

(from in-struere)[156] as well as 'construction' (from construere or 'to construe'), both which is considered a central aspect of organised teaching. The difference between construction and instruction can be seen as the primary division between learning and teaching respectively. In 'construction', the student 'builds' or makes his own meaning structures. In 'instruction', the educator makes these meaning structures and impose them on the student. Hence the difference between teaching and learning can be explained with reference to these two terms.

To see how these structures are formed, I analysed the 45 out of a total of 264 references to structure in the context of 'How' (Cycle 1). The students indicated structures (Cycle 2) such as the course outline, plans, processes, checks, deadlines, methods, resources, and communication structures that is needed to be in or put into place (7) [157]. The definition of 'structure' (Cycle 3) that can be derived from their reflections is 'how things should be organised' or alternatively 'to learn how to do things'. The closest dictionary definition for this kind of structuring is "4b: organisation of parts as dominated by the general character of the whole" or "4c: coherent form or organisation" respectively (Structure M-W, 2017). Structuring comes from students' needs (451), desires (26) or wishes (25) for some form of structure. From the analysis it was clear that students have a psychological need for structures or plans to be in place. Not only is structure a need by the students, but the institution requires it for each module, referred to as a "Course Outline"[158] which is essentially a course guide for the students, outlining the purpose of the course, any prescribed textbooks, readings, lesson plans and evaluation criteria. For the students, 'structure' results in learning, confidence, certainty, direction, knowledge and 'life lessons'. In general, the students felt that there was no formal structure to the course.

> We found the progression of creating the literature review was challenging since there was no formal **structure** or layout. (C4_TLC)

> A lack of **structure** leads to uncertainty (40), confusion (93), lack of direction (5) and ignorance (39) [159]. I learnt that I am a person that needs **structure**, so

[156] Means to "arrange, prepare, set in order; inform, teach" (instruct Online Etymology Dictionary, 2010)
[157] See analysis of 'Place' in 'Where'.
[158] Contemporarily referred to as a Syllabus
[159] Numbers in brackets refers to the frequency of these terms? Appears to be 'Knowledge' aspects.

> that I can know when to do the assignments and how the assignments need to be done. (C4_TLT)
>
> I think the module needs more **structure**, even if it is changed continuously. Students in future need to be given a *course outline* so that they can realise how big the exam assignment is as many of us only realised nearing the end of the module. If anything, *schedules* should be put in place for the exam assignment especially so that it does not run over the time." (C4_STS)
>
> I loved that this module was so different and that a lot of it was free styled. I liked that the lessons learnt in class was not out of a book, but reality and an eye opener. On the other hand, I found that I needed some **structure**. I was okay with having no *course outline* and set dates, BUT, I do think that some *dates* should have been set for definite. (C4_CK)

This raises interesting questions about whether some students are naturally adept at structuring their own environments and whether some students require more structures or whether they have merely become dependent on being provided with pre-determined structures. Reflecting back on the sequence for ***format*** that was coded, one can see that the need for structure is preceded by an unclear format and the need to 'figure' things out and materialises as a sense of confusion. The outcome of structure is being informed and can even be extended to the root construct for what we term 'information'.

confusion>figure_out>queries>***format***>*structure*>criteria>plan>informed

Structure is established through clear criteria and plans such as course outlines, dates and informing students of these. A perceived lack of structure results from a lack of these plans. The accepted approach to teaching is that the institution outlines the broader structures such as dates and times for semesters examinations etc. and the lecturer concerned needs to determine dates for assignments as well as the course outline. This leaves both the responsibility and learning how to plan with the lecturer concerned. Form a self-directed learning perspective, students need to take greater responsibility in planning their own learning activities and tasks. This can only happen if the underlying structure is 'radically' disturbed in order to present them with the need to form their own structures. There were of course some students who saw the positive benefits of this lack of structure.

> I can confidently say that I have learnt many valuable life lessons from "the **structure**" of this module so far and I look forward to learning many more. (C4_SP)

> You have to understand that being taught in certain "**structured**" way for years creates a certain comfort zone or level of normality that we expect in every learning or teaching situation. To have that taken away from us was like being told to "dig for your own water". (C4, NM)

> I liked the fact that there was no **structure**. Having no **structure** added an element of excitement to the course, not knowing what was going to be the topic of the day, or whether or not we were going to do any work for marks in class. (C4_CK)

As anticipated, this apparent lack of structure influenced the students to develop their own structures, both in terms of the assignments and the course. This was facilitated by the groups and management teams that were put in place.

> We were also placed into groups and these groups would basically be our support **structure** in this course, we had to learn how to manage and deal with each other which added to the experience of an unconventional class. (C4_QA)

> My team and some class mates were a great support **structure** when there was uncertainty. (C4_KK)

> As time passed, we started to get our footing and **structure** in the group as to who must do what, basically we found direction as to where we should be and what must be done to complete the journey 'so called research design". (C3_HM)

This view is supported by one of the students (C2_NL) referring to Totten, Sills, Digby, and Russ (1991) that forming students into groups allow them to *"take responsibility for their own learning, and thus become critical thinkers"* (Totten, Sills, Digby and Russ in Gokhale, 1995). This concept is referred to in education as 'shared collaborative' or 'cooperative learning'.

> It considers the processes by which ***structures***, including schemas; rules, norms, and routines, become established as authoritative guidelines for social behaviour (C4_MM).

This form of collaborative learning was not the case for students working on their own, and they needed to develop their own structures which were mainly directed at structuring the assignment.

> Through doing the analysis on my own and learning to **structure** it correctly through using other examples, it has been a new learning experience which will assist me when needing to do so on my own later on. (C2_NL)

By forming their own structures, students develop the ability to structure their own learning activities. The question that this analysis raises is what the value is of pre-structured courses, especially in situations where students are required to develop their own sense of direction or learning such as is required in a research course.

The primary decision that the educator needs to make is how much structure to provide the students with as opposed to how much structure the students are expected to develop for themselves. Education institutions have however invested significant efforts in representing HEIs as providing structured instruction with agreed course outlines and outcomes. This aspect requires further research to see what the pressures are on academics to put certain structures in place, as opposed to the pressures that are placed on students to structure their own learning.

VIII.4.viii Summary of teaching critically reflection

This section explores the question on how to teach students to become critically reflective. Having established that some form of critical reflection occurred amongst the students according to Kember's (2008) framework, I explored what this implied.

Reflections for the students meant "the process of making sense of things by thinking about them". Reflections came from student's emotional responses to specific situation, and lead to greater knowledge about their experiences. It is thus an effective tool for students to make sense of their experiences.

Categorising the term reflection revealed five categories of how students reflect. These are perceptions, form, plans, experiences and knowledge. Perceptions were a way that students could gain a clear perspective on their experiences. Form provided a structure for recording such perceptions. Plans allow students to reflect on how they can improve their activities. Reflections allowed students to think beyond their experiences and to draw meaning from them. Reflections allowed the students to develop self-knowledge on what they learned.

Reflections allowed students to gain a broader *perspective* on things. This allowed them to 'see' the bigger picture of their own lives as students in context. The format of the course provided a latent structure by forming students into groups, encouraging students to reflect, instructing them on tasks and assignments. In the process students learned for themselves how to do the assignments and through a process of reflection made meaning from these experiences.

Without clear *direction* on what to learn, students experienced the class as disorganised. The emphasis was however on the learning process, and the organisation was structured around activities that fostered student learning and reflection. This required students to organise their own activities. This is an aspect of education that warrants further research. As an educator, one needs to be careful not to 'spoon-feed' students, which requires a fine balance between the organisation of the course versus sharing of responsibilities. Too much emphasis on educator organising the teaching environment may have a debilitating effect on the student learning how to organise things for themselves.

Organisation for the students meant "to learn how to do things". Learning "how to do things" for themselves comes from students' needs for some form or structure. This need can be projected on the educator as a need for the course to be organised. This means that the teacher learns how to organise and the student does not. One form of 'formal' organisation in the curriculum is the course outline. These are both required by the institution and expected by the students. Students expect such an outline in order to provide them with structure and certainty during the course. Such a formal structure places students in a comfort zone and does not leave much room for dealing with uncertainty, such as they will experience in the workplace. The absence of a course outline leads to uncertainty, confusion, lack of direction and ignorance. It appears as if some students are better able to provide their own 'organisation' and are thus less dependent on the lecturer to provide them. Further research is required as to the value of an 'unstructured' curriculum has in fostering the self-directing capabilities of students.

VIII.5 Class participation

This section answers the first research question that I had, namely RQ1 "How do I get students to participate in class?" formulated in February 2011. The answer to this question only became clear after I had coded all the Categories under 'How' and was left with a set of terms that did not fit the overall Categories. After reviewing this set of data, I realised that this spoke directly to my research question as outlined in this section.

VIII.5.i Providing students with a 'platform'

A 'platform' is a noun that refers to a stage or raised surface, or it can also refer to a "place (or a forum) for communicating ideas or information" (platform M-W). The

students used the term 'platform' as an "online or classroom basis for further collaboration and sharing of information", a definition which is closer to the second dictionary definition as listed above. For students, a 'platform' (8/27) comes from being given an opportunity to speak in class, and also from being provided with the appropriate and suitable platforms for communicating and conducting research. This is facilitated through the establishment of the group leader meetings, WhatsApp groups and training in using the library databases. The precedent of platforms are giving direction, using, collaborating, adding, providing and being taught.

> The most important lesson I learnt from Walter was how to be independent and confident in all I do. He *gives* **platforms** to *students*, encourages and listens to students. I could go on and on about this man that I've grown to admire. (C4_KK)
>
> The weekly meetings that we as group leaders have help *give direction* and also are a **platform** for *information sharing*. I think it makes communication effective within the whole class as we then report to our group members about how far the whole assignment is. (C4_AM)
>
> I also *used* WhatsApp as a **platform** to *engage* with the group leaders of other teams throughout the second term. (C4_QN)
>
> This was found by reliable search engines, mainly EBSCOhost *provided* on the South African University's Online Library site. We were taught to use this search **platform** (*to utilise for further academe*) by the EMS level's very own Librarian. (C4_TLC)

These platforms provide students with the tools to engage and share information with others based on their stances or perceptions, thereby providing them with independence from lecturer delivered content and confidence in what they do.

> This allows the students to participate and contribute both inside and outside the class.

Traditionally, 'platforms' in education refer either to the raised surface from which lecturers present their courses, as well as to the 'online learning environments' or 'Social Learning Platforms" (Wallace, 2014). In a didactic approach, education involves the lecturer, student and the content (Fino, 2013). In an online environment (referred to as distance learning), it involves the learner and content. The emphasis in the traditional approach is on how much the student learns in a given period of time and does not necessarily consider the students beliefs and opinions. The sequence of actions can be illustrated as follows.

Figure VIII.3 Providing students with a platform to perform

VIII.5.ii Sharing of opinions

Opinion refers to *"a view, judgment, or appraisal formed in the mind about a particular matter"* (Opinion M-W, 2017). Due to the 'accidental' nature of the first category of perspectives; 'opinions' can either be true or not true. This aspect is encapsulated in the definition of 'perceive' as *"to have an opinion"* (Perspective M-W, 2017) or of a 'view' as *"an idea that is believed to be true or valid without positive knowledge"* (View in M-W, 2017) or of a 'thought' as to *"to have a view or an opinion"* (Think in M-W, 2017). The dictionary reflects this dialectical nature of 'opinion' as it can be both.

Aristotle himself struggled with the problem that an opinion can both be false or true, possibly at the same time, a matter that he resolved by dividing reasoning into four kinds; namely 'demonstrative reasoning', (b) 'dialectical reasoning', (c) 'contentious reasoning', and (d) mis-reasonings and examining each of these separately (Top, 100a25-18)[cxxvi, 160]. Premises formed from one's senses are called primary and true and resolved by means of 'demonstration', whereas premises formed by prior opinions are termed dialectical and are resolved with reference to a definition (Top, 100a25-35), either one held by most men or by the wise or by an expert in a discipline. Now there are two kinds of errors that may occur in dialectical reasoning, namely i. 'the making of false statements' and ii. errors in diction and definition (Top, 109a25-30)[cxxvii]. It is these aspects of 'opinion' which have given it its bad name in academia … opinions in themselves, however, are fundamental to science where they are referred to as hypotheses, and in human reasoning where they are referred to as hunches or beliefs.

For the students, 'opinions' refer to one's self and other's views such as students, groups and key players views, through the use of terms such as "in my opinion" (C4_CK), "he held his opinions" (C4_MH), "their opinion" (C4_SBP). The precedent

[160] For an in-depth discussion of these kinds of reasoning see 'Reasoning Summary for Thesis' under section 1.6 Logical Reasoning'

for opinions is what people 'have' (C4_EAT), 'hold' (C4_MH), 'make up' (C1_EJV), or 'think' (C1_EJV).

> I wanted to learn more about what… the various key players' **opinions** are and lastly what the citizens think of it. (C1_EJV)

> This, I felt, would be right way of doing it and also provide me with enough information to make up my own, well informed, **opinion** of this situation. (C1_EJV)

> He held his opinions very high and worked to achieve the best outcome. (C4_MH)

The consequence of 'having' an opinion is 'making it known' (C4_LLL), 'airing' it (C4_LLC), or 'giving' it (C4_SKP, C4_PM). The dialectical nature of 'opinion' has however led to it receiving a disreputable name in academia, and students felt that they were never encouraged to share their own opinions, regardless of how well considered it was, as academia expected them to know the 'facts'.

> Unfortunately, in university your own **opinion** is not much welcome because we are taught how to memorize the textbook and display our intelligence by getting 80s and 90s, not once in a module was I requested to write what I think. (C4_EAT)

This course, however, allowed students equally to have an opinion and to share it, both in their reflections and in class.

> Despite being an unconventional teaching method, I really enjoyed it a I felt that my **opinion** was being considered and it gave me the opportunity to think on my own and this allowed room for initiative. (C4_LLL)

> The skills I have learnt in this module will help me do this, also having confidence in making my **opinion** known and giving a reason for this opinion will help me as I will be able to back it up with research that I found. (C4_LLL)

> It teaches us not to be dependent on other people for guidance and information, it is a jungle and it needs student who know how to play with words and look even in the most unlikely places to find credible information, but mostly it allows you to have an **opinion**. (C4_EAT)

> This past six months has taught me to stand up and voice my **opinion**, in an appropriate manner, especially when it came to decision making. (C4_SKP)

This resulted in students feeling safe to share their opinions both in class and on WhatsApp, as well as allowing others to have their own opinions.

> My group served as a backbone for me, they always made themselves available and provided me with ideas, **opinions** and guidance. (C4_MH)
>
> People were also willing to give their honest **opinion**, during group leader meetings, on WhatsApp as well as during class discussions and this helped me so much, even though they did not know. (C4_SKP)
>
> Some group leaders that did not give their opinion as often also managed to do more than what they were supposed to do but they were too shy to voice their **opinion** and rather spoke to us separately. (C4_SKP)
>
> Also I was amused by the vast difference in **how** some things are interpreted in so many ways. A small thing can give so many views and **opinions** from different people. (C4_PM)

During the course, the students learned not only that other people had different opinions or viewpoints, but that they also learned to value and respect them, a term that is mostly referred to as having a 'high regard' for someone else's opinions and views.

> Although I am someone who is quiet and does not speak often, I am someone that tries my best to maintain an open mind and heart to the **opinions** and perceptions of others. (C4_ZA)
>
> C3_CH was the idea generator, he was approachable and very understanding, and he held his **opinions** very high and worked to achieve the best outcome. (C4_MH)
>
> To me all that was said that day was very important it changed me and the way I used to do things, it changed my understanding and brought to my attention that I am who I am because of people and that people's **views** are important. "Umntu ungumntu ngabantu" (C4_LD)
>
> I feel I have respect for them as individuals because they are all different from myself and each other – yet they are open to finding common ground such as how to go about doing the assignment, respecting and accepting **others views** as their own. (C4_NM)

According to the M-W, opinions can equally refer to untested ideas as it does to a considered view or judgement on a matter.

> "For imagining lies within our own power whenever we wish (e.g. we can call up a picture, as in the practice of mnemonics by the use of mental images), but in forming opinions we are not free: we cannot escape the alternative of falsehood or truth" (DA, 427b15-20).

In this case, opinion is also not a judgement, a matter which only appears when looking at behaviours. The most appropriate definition that can be derived from the text for an opinion is *"The sharing of one's views with others"* as opposed to the views that one keeps privately or does not share, for whatever reasons.

In this research context, an opinion is not a considered view, but an *expressed view*, a matter that will be examined next. This is the converse of a repressed view or an oppressed view, a concept with which Freire is all too familiar in oppressive societies (Berlowitz, 1976; Freire, 1970a; Giroux, 2010; Morrow and Torres, 2002; Slater, Fain and Rossatto, 2002). The way in which students' opinions are repressed is simple. Students are given textbooks and asked to reproduce them in examinations. Those that are best at reproduction are rewarded as achievers. Those who cannot accurately produce these texts drop out. All of this is done under the cloak of 'they need to learn the basics'. And throughout this process the student does not have say in the matter.

The weight of the evidence in this case is heavily in the students' favour in view of the sense that their opinions are not welcome. Likewise, by giving them an opportunity to 'speak their minds', they realise that they actually do have important things to say.

VIII.5.iii Students' views

The use of the term 'view' (60) by the students refers to one's viewpoint' (2) or how they see things with reference to their 'thoughts' (44). The 'image' that is formed in the mind is referred to as the "picture, representation, visualisation, imagination, illustration, likeness, abstraction, manifestation or objectification" (M-W, image). This 'image' forms the ideal shape or against which we evaluate our opinions. From the students' perspective, their 'image' refers to how they see themselves through others. Thus this 'image', which is formed from other's opinions of them determines how they look at themselves.

> Learning's – as we grow/ mature we only understand our "**image**" through other's because if it was us as an individual, there would be no "this is where I am from", "I am from here…", "I am studying this…". In other words there would be no reference to who we are and what we are doing. (C4_TL)

This 'image' or self-image is thus a strong differentiator for what the student thinks of him/herself and their roles and capabilities in the course and in life. It also limits their beliefs in what they think they can be or do.

> I wonder how important it is to use your **imagination** and whether this could hinder the learning process? How will students learn to use their minds, will they be able to think for themselves? (C2_NL)

By giving students a project to work on gave them the ability to draw on their own knowledge and skills and not be conditioned what others thought of them.

> This method of working expanded my knowledge changed the way I think and **view** my work because I am now less pressured to follow rules and boundaries. (C4_QN)

> I tried to use my work project skills with this assignment, such as how to deal with time especially and how to bring across my personal **views** in and an appropriate manner without upsetting any group members. (C3_HM)

These new views were not accidental but were part of my reinforcement of the course for the students intended to make them look differently at things.

> The lecturer Mr Walter Uys said this is a Research Methodology class we **view** things differently. (C4_LD)

> The lecture itself was based on trying to challenge our thoughts and **views** based on the article. We also discussed how we **view** ourselves and function in today's world in relation to acquiring information. (C4_NM)

> Voicing your **views** is the key in this modules as the lecturer said that every individual **views** must be heard and listened to because we do not think alike and a person teaches you something new every day, and also what the person says is never wrong because it's **how** he/she sees things it's up to you as an individual whether you see what the person is saying to you of value or not to consider. (C4_LD)

The students reflected that they had learned both to value other's views, but that they also learned to reflect on their own views and how to view things differently.

> "As I do, he firmly believes that our students have the ability to compete with the best in the world but are limited by their scholastic background and general environment, resulting in a flawed self-image and self-confidence. If given the opportunity by a lecturer that are willing to invest time and effort in them, they excel and even surpass expectations….Through a critical pedagogical approach

> he has assisted students to develop their imagination, abilities and self-image" (HoD, ETEA 2012).

From the ETEA motivation, the HoD expresses clearly that the students' scholastic backgrounds and the environments in which they grew up resulted in a flawed self-image. It was my role to boost this image by giving them a voice.

VIII.5.iv Giving students a voice

The 'banking' paradigm of education (Freire, 2005) results in only the lecturer sharing his thoughts and ideas in the class, or at most asking the students a question on the subject material that the student either does not know, or can't remember...thereby reinforcing a culture of silence. Silencing students' opinions in academia is the same as silencing their critical voice. This problem does not start in HEIs but at home, where children's persistent asking of 'Why' is often met either with 'go ask someone else' or 'shut up'. This practice of 'silencing' this quest for knowledge is much in keeping with a pedagogy of the oppressed (Freire, 1970a):

> "By being kept in a situation in which it is practically impossible to achieve a critical awareness and response the disadvantaged are kept 'submerged'. In some countries the oppressors use the system of education to maintain this 'culture of silence'" (Freire, 1970a:Foreword).

By embarking on a shared education of praxis, the students are encouraged to develop their own 'voice'. *"each individual wins back the right to say his or her own word, to name the world"* (Freire, 1970a:Foreword).

> So, the answer to my first question appears in the chaos. How can I get my students to participate'? By giving them a voice!

In such a situation where students are oppressed, it becomes essential to acknowledge and encourage them to share their opinions and ideas, regardless of how radical or contentious they may appear to be. Some of the most amusing situations in class occurred where students questioned my own opinions on matters. In such a situation, the only opinion that is unwelcome is the one that is not shared.

VIII.5.v Performance

In this case, the *platform* (both figuratively and literally) became the students'; where they were encouraged to voice their perspectives and beliefs in class and through their reflections, i.e. where they performed. In this way the traditional classroom was

reversed, where the students conducted their own research on the topic and presented this to the class and lecturer through various mechanisms. There is an approach referred to in the literature as a 'flipped classroom' approach (Al-Zahrani, 2015; Thai, De Wever and Valcke, 2017; Wallace, 2014). As a relatively new mode of education there are still a broad range of approaches and techniques that can be classified as a flipped classroom. Essentially, however, there is some agreement that 'flipped classrooms' move traditional instructional material (read content) to online platforms that are available to the students prior to class, and utilise classroom time for higher level discussions and engagements resulting in improved learning outcomes (Gilboy, Heinerichs and Pazzaglia, 2015; Thai, De Wever and Valcke, 2017). This approach, however, still has its roots in didactic teaching, where the subject or topic of discussion is made available to the students prior to the class. As detractors of this method indicate, even in a didactic approach, students are able to and even encouraged to read up on the lesson prior to the time of the lecture.

Fundamentally, however, this approach promotes 'active learning' where the student engages critically with the learning material "analysing, synthesising and evaluating it) instead of merely memorising or recalling it, and the educator moves from the "Sage on the stage" to "the guide on the side" (King, 1993). Yet active learning as it was initially envisaged also follows a standardised, deductive approach to learning where *"for each major concept or principle that we present, or that our students read about in their text, we structure some activity that requires students to generate meaning about that concept or principle"* (King, 1993:31).

My kind of learning is more inductive, inquiry based!!!

In this case, the learning platform was not restricted to the learning environment, but extended to the internet, WhatsApp and institutional (library) databases. The traditional textbook approach was replaced with an active approach to learning, where the students were trained in accessing and critically evaluating online resources and formulating their own views on the matter i.e. it encouraged creativity and critical thinking.

> I would lastly like to just talk about the latest WhatsApp group chat that we had. So everyone is now busy with their assignments, and when questions are asked, no one answered. So last night some eventually answered each other and we ended up laughing at how everyone is on their own, and how it is now a "one man jive". Also we spoke about how we were gonna miss each other and Walter as the

> semester was ending. We also discussed about how we should be chilling at home with our families by now. Everyone that was involved in the chat kept on talking about how Walter "got us". (C4_AM)

In the end we may replace our 'banking education' system with a problem-posing education (Freire, 1973), or problem-based education (Ryberg and Norgaard, 2013; Schools, 2007) or even as Rothstein and Santana suggest: "Teach Students to Ask their Own Questions". We may also change our educational system to be research led instead of content or subject led…such as "Launching a successful research program at a teaching university" (Ryan and Milevsky, 2016).

'How we teach' does not necessarily depend on what we teach, where we teach, who we teach, and even why we teach. How we teach has got everything to do with our conduct or what is referred to as our behaviour. Children learn firstly by imitation. So do adults or adult learners. If we are not setting an example of how we teach, our students will not follow or trust us. If we want them to research, we need to research ourselves. If we want them to answer difficult question, so do we. So firstly, we need to work on ourselves in order to teach others. This in itself cannot be achieved by completing a Master's degree or even industry experience, i.e. the two requirements to teach at undergraduate level in SA. This can only be achieved through a sustained practice of self-inquiry and learning, a process that started for me in 2009 with Prof Ngwenyama's "Philosophy of Science" lectures at UCT and only ended in 2017 at the conclusion of this write-up. For only now can I look back with the maturity that I have developed over time and reflect on 'How I taught'[161].

> Literally and figuratively seeing myself reflected back from my students…Like a mirror.

VIII.5.vi Summary of class participation

The most important outcome from this section was answering my initial research question RQ2 on, how do I get students to participate in class? The answer is, of course, by giving them a voice. This is a central aspect to Freirean education as emphasised by Mayo, viz. "instead of being *passive recipients* of knowledge, they are allowed to reclaim a voice which an entire prescriptive social system appears to have denied them" (Mayo, 1999:90).

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[161] This statement answers my research problem on 'How lecturers can teach themselves to teach'.

The way that students gained their voice in this process, was by doing their own research, finding out facts for themselves, and gaining a basis from which to argue as to the validity of the opinions. I gave them this platform by encouraging them all along the way to be themselves, and to not stop questioning, especially if they thought it was not their ideas in the first place. By accepting all the diverse opinions and beliefs of the students, and by giving them a chance to participate, both in the project and in class,

I gave the students a basis on which to construct their own opinions and critically question the constrained beliefs that they might have had and allowed them to stand up for the own beliefs, un-constrained by social conditioning or previous mis-education. One of the main ambitions of the students, in the end, was to be able to participate in a research process where they had the possibility of presenting their findings to the broader academic sphere through publishing the results. I can say with full certainty that the students did the entire project on their own, without my help. I was always there in the background, ensuring that they had a protective environment in which to explore their creativity, never holding them back or limiting them to the belief systems which they might have had. In the process of giving the students a platform to have their voices heard, it allowed me a basis from which to present an approach to teaching practice (or lack thereof), which has made a difference in the students' lives, and may make a difference in future students' lives.

VIII.6 Conclusion

This chapter concludes the empirical research on how I taught the course. In this chapter I presented detailed support for answering the four other research questions which I started out with namely:

Table VIII.2 Summary of research questions and propositions

Section	Research Question	Major Propositions
1. Introduction		
2. My teaching approach	RQ6: What does it mean to teach?	By being present in the classroom.
3. Self-direction	RQ5: How do I teach students to teach themselves?	By providing students with a clear assignment (What to do) and encouraging them to find their own direction (How to do it).
4. Critical Reflection	RQ2: How do I teach students to be critically reflective?	Through un-structuring the curriculum as an outcome and restructuring it as a course or journey.
5. Class Participation	RQ1: How do I get students to participate in class?	By giving them a platform to express their opinions.

In Section 2, I explored my teaching approach through the eyes of my students. This approach essentially came down to giving students the freedom to learn through an unstructured approach that was both though-provoking and demanding of excellence. My teaching approach can be summarised as being intuitive and in-the-moment.

In Section 3, I explored what it means to teach students to learn for themselves i.e. become self-directing. This process has more affinity with directing than teaching and occurs in a joint collaborative process by providing students with assignments i.e. what to do, but not telling them how to do it. The educator conducts the class and himself in a manner that encourages students to learn for themselves. In this way, students developed a deeper approach to learning by actively engaging with the assignments. Not only does a lack of 'directing' foster students to find their own way in the course, but also in life i.e. they develop their own sense of direction. They achieve this by structuring their own tasks and thought processes. By encouraging the students to find their own direction, the course becomes a way of learning for the students. In other words, they became self-directed adult learners through a process of action and reflection.

Section 4 examined my research question on how to develop critically reflective students. In this section I explored what it means for the students to reflect. In essence, reflection is a way for them to make sense of their experiences. Reflection for the students forms a process of thought that takes them from their initial perceptions through a process of learning. This allows them to gain a broader perspective on the class, their role as students and of life. The lack of structure in the class was a clear source of reflection for the students on how education constrains their thinking. Through a process of 'unstructuring' the curriculum, students developed their own structure.

In Section 5, I explored the question on how I gave the students opportunities to participate in class. The problem was that my initial approach to teaching did not foster much participation. By allowing students to freely share their opinions in class, I gave them a platform to be heard. This platform allowed them to share their viewpoints as well as hear those of others and realise that there are multiple perspectives in life. This also brought into question their own images and values that

they had of themselves. How we teach our students has a direct impact on how they learn. In essence, they reflect our own views of what they are capable of.

In conclusion; learning how to teach has as much to do with teaching as it does with learning. Good teaching requires a rigorous process of teaching and reflection in the tradition of Scholarly Teaching and the Scholarship of Teaching and Learning. The next chapter will collate these discoveries in terms of the research findings.

"Umuntu ngumuntu ngabantu"
A person is a person through others.
(African Proverb referred to as 'Ubuntu')

Chapter IX Research Findings

"By three methods we may learn wisdom:
First, by reflection, which is noblest;
Second, by imitation which is easiest; and
Third by experience, which is the hardest" (Confucius).

WISDOM is an elusive dream for most, and a concept that is not discussed much in higher education. Many strive for wisdom in all its forms, yet they do not know or realise what they are seeking, how they should obtain it, where to find it…and so forth. This chapter concludes my journey as an educator with a group of students who found our collective wisdom in a reflective practice of learning how to learn.

IX.1 Introduction

In the preceding two chapters, I analysed the curriculum that I designed to teach students how to research for themselves and how students learned in the process. Essentially representing an epistemology of praxis, where the educator learns to research together with the students. In this chapter I argue Why such an epistemology is important for educators and what we can learn from this. In Section 2, I outline why 'Why' is important in theory and praxis, as it provides a reason and cause (essentially a because) for things. In section 3, I reflect on 'Why' I taught in this way. In Section 4, I synthesise the results of my analysis on 'How' students learn and compare this with processes of learning that are widely used.

In Section 5, I present my theoretical framework of reflective educative praxis that is based on Aristotelian philosophies of a curriculum of praxis as reviewed in Chapter V. In Section 6, I provide an overview of the research questions that I set out answer in this dissertation, and outline 'How' I answered them through my research. In the final section I reflect on the effect that this curriculum had on the faculty where I taught and provide some suggestions towards the institutionalisation of such an approach.

IX.2Quest for knowledge

Man's incessant quest for knowledge for its own sake is a quest to know 'Why', or more correctly the reason 'Why' things appear to be as they are (Lear, 1988).

> "Knowledge is the object of our inquiry, and men do not think they know a thing till they have grasped the *'Why'* of it" (Aristotle Phys, 194b15-21).

Maybe our children are wise in answering the question 'Why' with 'because'. Because Why in itself does not provide the entire story. Why may provide us with the root cause but not the reasons for such cause. Neither does experience provide us with this knowledge.

> "For men of experience know that the thing is so, but do not know *'why'*, while the others (philosophers) know the *why* and the *cause*" (Aristotle, Met 981a29-20).

It is only the 'Because' part that answers the question *'Why', through* indicating a series or course of events, or a chain of causality…starting with the first 'Why' and ending with the reasoning behind why things are as they are. This dissertation represents the *'Why'* of 'my story' of 'How' I taught and 'How' students learned. Of '*How*' I followed a line of inquiry starting from *'How'* to teach students to teach themselves, to the answer of *'How'* I taught myself to teach. As a result, I now know the reasons *'Why'* I taught in this way.

> "And in general it is a sign of the man who knows [*why*][162] and of the man who does not know, that the former can teach…for artists can teach, and men of mere experience cannot" (Aristotle, Met 981b8-10).

In the process I have realised that I do not need to try and teach anymore…I am a teacher. I have reached a stage of 'unconscious competence' where teaching happens in praxis. In the process I have taught a number of students '*how*' to take responsibility for their own learning, a concept that is referred to as self-directed learning. This was done by making research fun so that students wanted to learn…as opposed to providing them with information which they 'have to' learn in order to pass an exam.

[162] From Metaphysics, 981b6

In this way, a group of undergraduate students managed to surpass all expectations and conduct a quantitative survey of over 2000 students on their usage of smartphones. Also, one of these cohorts assembled a paper that was presented at a peer-reviewed conference on 'How students use their smartphones'. But, most importantly, the students learned how to find themselves in the wider contexts of their different circumstances. This allowed them to step outside their social conditioning and present themselves to the world as unique individuals.

IX.2.i 'Why' I taught in this way

According to Aristotle (Met 981b8-10), only those who know '*Why*' can teach and according to Whetten (1989:49), it is important to be clear on *'Why'* we embarked on our research in the first place when presenting our theories to the public. So, the question I asked myself is: *why* would I as an educator go to such lengths to teach my students to do research on such a large scale/project, to teach them how to critically reflect and to take responsibility for their own learning, if all I needed to do was follow the path of least resistance and teach them the subject as outlined in the course guide. Some insights can be gained from C3_TG's comments on a Linked-In post.

> Walter is an extremely intelligent individual, who has helped simplify complex matters for a number of students including myself.
> He not only helps to solve problems, but does so in a way that teaches the individual to solve it themselves and in a manner in which the problem can stay solved.
> In one line: 'Walter teaches the person the skill of problem solving and then managing the problem so that it stays solved.' (C3_TG, Linked-In post)

The following reflection provides some of my insights as to 'Why' I think I taught in this way. As a child, I grew up in a family of educators. My father had a Master of Arts in Afrikaans and a Postgraduate Diploma in Higher Education, and was a lecturer at an HDI university, and my mother had a Bachelor in childhood education. My father had really high expectations of me throughout my youth. He was also a very strict disciplinarian. In the process I developed a detest of any form of control. Essentially, I don't like anybody to tell me what to do. I'll just either withdraw, walk away or confront the person. My mother, on the other hand, was extremely loving and went out of her way to provide us with a safe environment in which to learn through play. Both these aspects have formed part of my character.

Furthermore, I have had many years of experience in industry as a software architect and being on and managing various projects. Lastly, I was busy with my PhD at the time. It was thus natural for me to combine all my strengths into my teaching and thus research my teaching. Although SoTL is an emerging practice for educators to research their own teaching, it is the exception and not the norm amongst my peers, as my HoD noted in the motivation for my 'emerging teacher's excellence award' (ETEA).

> "With the emphasis on research output in South Africa, lecturers that invest significantly in teaching and learning are quite rare. Mr. Uys is one of those rare lecturers that invest an equal amount of time in his research and his teaching and learning" (HoD, ETEA, 2012).

The reasons for my approach are rooted firstly in my distaste of control structures and thus aimed at teaching my students to think for themselves. Secondly, it is rooted in my passion to make learning fun that I learned from my mom. Lastly, I have some 'blind spots' which also influenced the way that the course unfolded. These I reflected on during the process of this research.

- I don't like deadlines – hence my approach to flexible deadlines or continuous education where the student is evaluated when he's competent and not when a certain period has elapsed
- I don't like authority (or being told what to do) – therefore this carried over in my teaching in not telling students what to do but working together with them to construct the research
- I think it is wrong to boast – therefore I try and make others (in this case the students) look good
- I avoid conflict – I'd rather keep the peace/easy-going than challenge someone even if it is wrong
- Avoiding work - I always try and find a better/easier/simpler way to do something. Hence by teaching the students to be self-directed it means that I don't need to teach them. It also means that things that take hard work to do tend to be postponed
- Avoiding writing- I think I'm a master at procrastination

Another characteristic of mine that I take great pleasure in, is in figuring things out. This meant that I went to great lengths to trace the origin of a reflective framework, which Sloan (2010) located in Aristotle's Nichomachean Ethics, back to Aristotle's dialectics as a system for making good moral choices. It took me more than a year to systematically work through and understand Aristotle's Categories, Analytics, Topics, Ethics, Politics, Poetics and Rhetoric. This gave me some great insights on one of the greatest philosophers of all times, and also to how some works were 'lost', misused and even copied by later scholars[163]. Some of these aspects have been documented by Jonsen and Toulmin (1988) in the "Abuse of Casuistry: a History of moral reasoning". Unfortunately, much that has been written by Aristotle was lost a long time ago, and we may never know what happened with or to some of his works. Through systematically applying this process of analysis, I was able to make sense or construct meaning of my teaching practices and how my students responded in turn.

IX.2.ii 'How' we learn

The only element of circumstances that I analysed to the last cycle is the element of 'How' as it directly relates to action or 'How' I taught and 'How' students learn. Following is a definition for each of these terms as derived from the data, together with the categorisation, topic and frequency (f) of references[164]. These categories can be represented in the following hierarchical model.

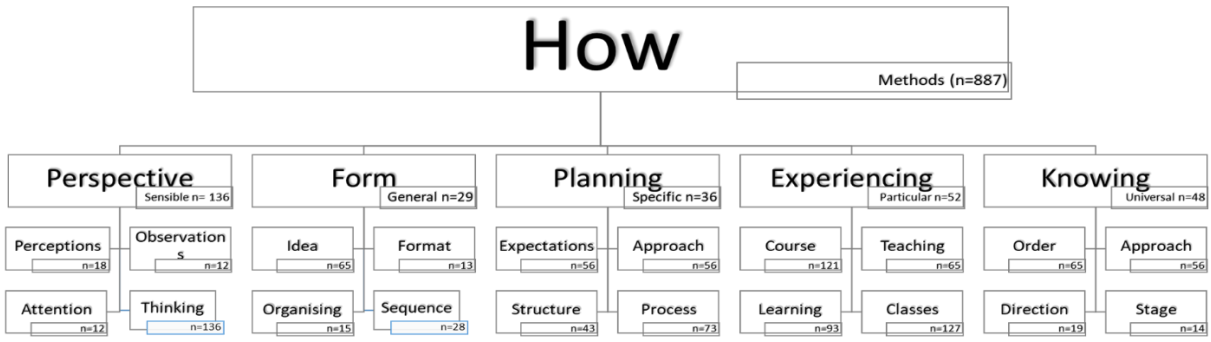

Figure IX.1 Meta-cognitive framework of 'How' derived from empirical observations

[163] See https://en.wikipedia.org/wiki/Recovery_of_Aristotle

[164] The frequency indicates the occurrence of the term in the context of 'How' versus the overall occurrence.

Table IX.1 Definitions for elements of 'How' derived from coded reflections

Category	Topics	Definitions (NVivo)	f
Q1. Perspectives (Material Cause)		**Taking a broader or different view on things.**	**43/425**
	i. Perceptions	How we see things as a result of our senses.	18/51
	ii.Observations	The noticing of the world around us by means of our senses.	9/68
	iii.Attention	A focus that allows you to notice/see things	62/88
	iv.Opinion	One's own or other's such as students, groups and key players views	12/51
Q2. Form (Formal Cause)		**The thoughts that we have about things.**	**27/102**
	i.Idea	The view that one has about things.	65/199
	ii.Format	The structuring of one thoughts or ideas in terms of a clear plan	13/42
	iii.Organising	To arrange or put things in order.	15/312
	iv.Sequence	The organising of things from first to last	28/60
Q3. Plans (Efficient Cause)		**An approach to arranging activities in order to meet ones' objectives.**	**36/177**
	i.Expectations	What the students or lecturers need to learn or do.	138/246
	ii.Approach	The process of focussing on something in order to learn more about it.	51/164
	iii.Structure	How things should be arranged for learning.	45/264
	iv.Process	Learning how to set up and do tasks and assignments.	70/238
Q4. Experiences (Final Cause)		**Personal growth and learning as a result of having a good time or avoiding bad times**	**56/224**
	i.Course	A sequence of tasks and activities that are performed in order to learn new things.	113/533
	ii.Module	The tools or tasks students need to develop their abilities to think about and understand things	159/382
	iii.Research	A way for the class to learn about things.	325/1151
	iv.Reflect	Making sense of things by thinking about it.	99/583
Q5. Knowledge (Effect/Outcome)		**A way to reflect on what we do**	**94/451**
	i.Direction	The way that one expects to go	31/117
	ii.Steps	A way to highlight the direction one needs to take in doing something	16/92
	iii.Stages	Sequence to follow in order to complete a task	10/57
	iv.Platform	A class or online basis for further collaboration and sharing of information	8/27

This table represents the analysis of the five main categories of 'How' namely 1. Perspective, 2. Form, 3. Planning, 4. Experience and 5. Knowledge/Evaluation. Each one of these categories in turn have their own internal process, i.e. Perspectives has a process such as perception→observation→attention→opinion→perspective.

At the highest level of this model i.e. at the level of categories, we can derive the following sequence namely:

Perspectives→Form→**Planning**→Experience→Knowledge

This sequence forms a process that cycles through the iterations of how we learn from our experiences. Fundamentally one could represent the overall process as follows.

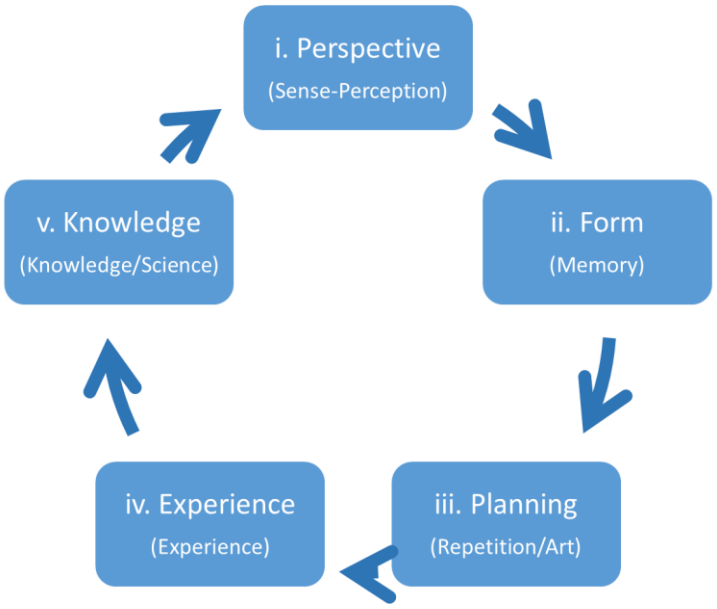

Figure IX.2 Students' reflective cycle

The terms in brackets in Fig. VIII.2 are the terms that Aristotle used in the Posterior Analytics (APo, 100b3-9) to describe the process of sense-making as follows:

> "So out of (i) **sense-perception** comes to be what we call (ii) **memory**, and out of (iii) frequently **repeated** memories of the same thing develops (iv) experience; for a number of memories constitute a single experience. From **experience** again i.e. from the universal now stabilized in its entirety within the soul, the one beside the many which is a single identity within them all originate (v) the **skill** of the craftsman and the **knowledge** of the man of science, skill in the sphere of coming to be and science in the sphere of being" (APo, 100b3-9).

Aristotle's original process would thus be as follows:

Sense-perception→memory→repetition→experience→knowledge

It is thus surprising that I arrived at terms that were very close to those used by Aristotle from the empirical data. Clearly the term 'Repetition' as used by Aristotle would not have appeared in my students' reflections, instead it was the term 'Planning' that gained prominence. Other similar terms that belonged to Q3 that can be considered to be Planning are a Scheme, Blueprint, Plan or Design. Other terms that belong to Q2 that is closest to Aristotle's term of 'memory' is figure, dream or ideal. In Q1 sensation and senses (sight, smell, taste etc.) are logically equivalent. What is surprising to me is that after more than 2300 years, the analysis of my students' reflections arrives at a similar conclusion as Aristotle.

More importantly, there are other reflective/planning cycles that are close or very similar to this process. One or two that I have encountered are the action-research cycle (Carr and Kemmis, 1986; Kemmis, 2009) of *plan→act→observe→reflect*. Rewritten to match the above sequence it would be *observe→reflect→plan→act*. It is of course missing the 'Knowledge' component from Aristotle's and my own cycle. Another similar cycle is the *plan→do→check→act* cycle of Deming as derived from Francis Bacon's scientific method that he presents in his 'Novum Organum (1620) (PDCA Wikipedia, 2017). Again…re-organised according to the sequence that I uncovered, it would be *check→act→plan→do*. As can be seen from this, it is firstly out of sequence with the original cycle as established by Aristotle, and secondly it also is missing the knowledge step.

From the theoretical framework of 'How' it can be seen that knowledge comes from action, and not from taking in information *passively*. Furthermore, what we know makes no difference to anyone except ourselves, unless we act on it. I therefore suspect that this de-emphasising of the action component is what has led to some of the challenges that we experience in the education system.

> This has led to an information rich and action poor curriculum and education system.

IX.2.iii Experiential teaching and learning cycle

In order to make sense of this reflective cycle in the teaching act, I have realised that the teacher's reflective cycle dynamically interacts with the student's reflective cycle at the moment of action. This process can be referred to as an experience or experiential cycle and is represented in the following figure.

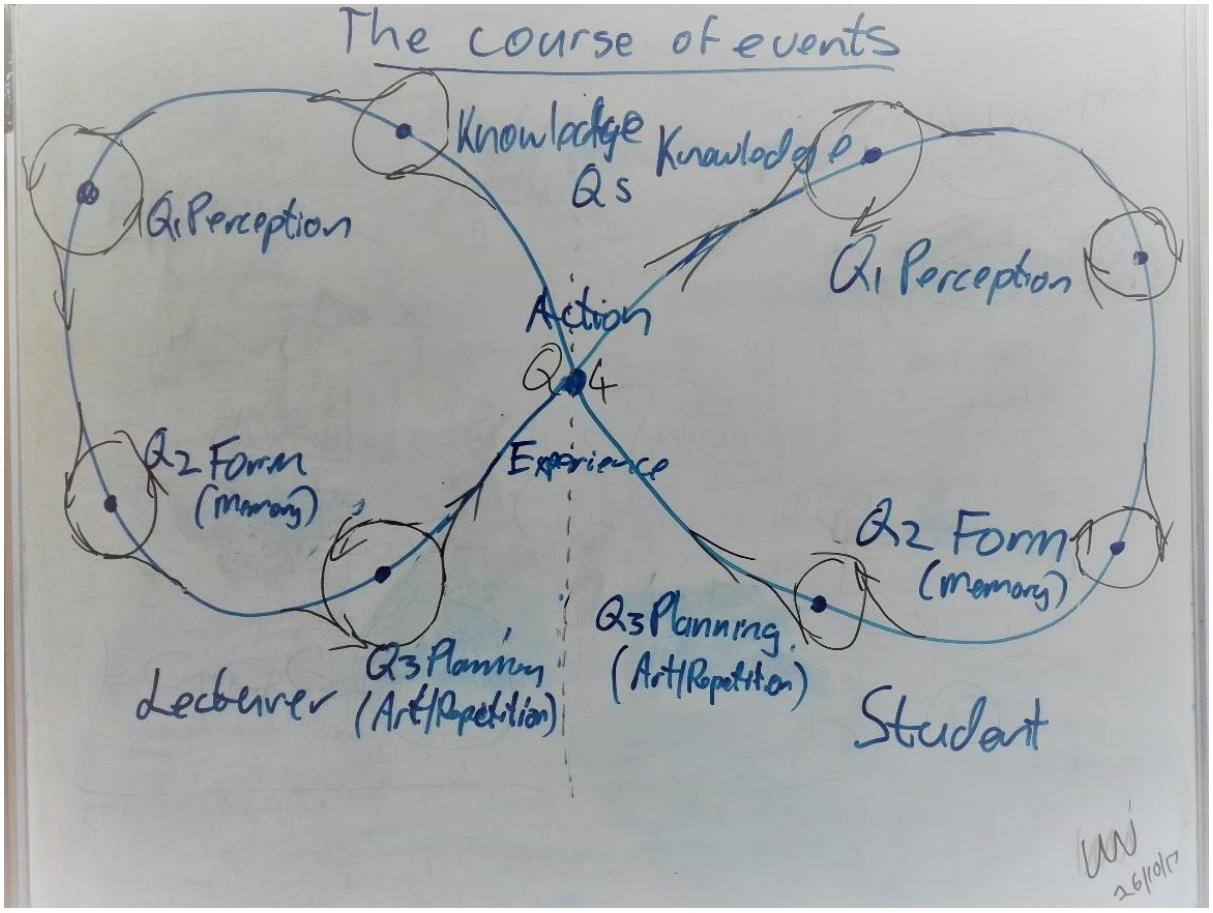

Figure IX.3 Action-reflection dynamic between lecturer and students

Theoretically, this cycle could start at any point, but typically starts at a point where the lecturer becomes aware of some need, either based on a thought, feeling or observation that he has made. He may then cycle through category 1 elements of S1-S4 of perception, observation, attention and thought until he/she can form an idea or shape of what he is looking at[165]. At this point the emphasis moves to the 'formal' cause which is based on mental constructions, referred here as conception but in the coding as 'Form'[166]. This refers to the 'form' of the idea that the person has. This stage has four cycles as well. In sequence they are Idea, Format, Organising, Sequence which then

[165] Note that these were not the only terms that fell into the 'sensible' category. The other terms in order of decreasing occurrence that belong to perception were look (84), feel (84), something (78), focus (46), views (27), guide (27), hear (25), sense (24), view (23), find out (20), aware (18), keep (18), Attention (12), opinion (12), note (12), ignorance (7), identify (7), informative (6), voice (6), centre (5), eye (5), concentration (4), narrow (4), observe (4), consciousness (3), core (3), educational (3), ignore (3), notice (3), fashion (2), footing (2), heart (2), Vision (2)

[166] The other terms that fell under form are class (127), idea (66), 08.approach (58), framework (33), **design** (29), belief (22), direction (19), goal (19), aim (16), type (16), figure (14), discover (13), policy (11), model (10), policy (7), shape (7), wish (5), ideal (4), dream (3), intention (3), objective (3), 10.target (2), base (1), disorganised (1), ambition (0), aspiration (0), intrigue (0), arrangement (4)

establish the concept that the person has perceived. The process then continues on to the next two categories until the lecturer is clear what he/she wants to do and then moves to action, either in the classroom or behind the scenes, such as posting an assignment, reading up on an article or anything that he/she may find necessary. If the action does not intersect with the students, it will then just cycle around till the next experience. When the action intersects with the students, it initiates the same cycle, but in the students. So, this cycle will continue as long as there are dialogue and interaction between the lecturer and the student. In the same way the student may also initiate a process from his side.

This figure that is interspersed with actual memories and actions of the events then become the course of events, both for the student and the lecturer. For a more in-depth description of the process as Aristotle envisaged it, see Aristotle's discussion in the Metaphysics and in the Posterior Analytics. The normal flow of cognition can thus be represented as follows:

perception→conception→ reasoning→experience→knowledge

It is also, of course, possible that such a cycle may reverse at any given point, should the next category prove to be a dead-end. One could also skip one of the elements, should, for example, a perception triggers an action. However, this model is presented in the normal way that such models are presented.

IX.3Theoretical Implications

In this thesis, I set out to examine the duality of teaching and learning at HEI, and more specifically in learning how to teach and teaching students how to learn. These innocent questions culminate a long line of research on teaching and learning in higher education(Behr, 1980; Gibbs, n.d.; Jarvis, 2002b). In this research I uncovered the teaching research nexus (Baldwin, 2005; Trowler and Wareham, 2007) for such a duality in the teaching of research and the research of teaching through self-directed learning. These are inter-alia embedded in the concepts of Scholarly teaching (ST), Research-based learning (RBL) (Brew and Boud, 1995), self-directed learning (SDL) (Hiemstra, 1994) and action-learning (AL) (Revans, 1982a). It is to these that I return in order to situate the theoretical implications of my research.

IX.3.i Elements of circumstance

Education is a practical matter, as one cannot educate students without some form of action (Boud and Walker, 1991; Carr, 1987; Roger Deacon, 2004). This would involve practical decisions (reflection) and actions on *what* to teach, *how* to teach and *when* to teach (Schubert, n.d.). In this way, education is seen as a 'moral practice' where ongoing decisions need to be made in terms of what is best for the student depending on the circumstances (Campbell, 2004; Fitzmaurice, 2008; Pring, 2001). These elements of evaluating moral action (what to do, when to do, where to etc.) has been latent in numerous practices such as journalism (Jonsen and Toulmin, 1988) and as interrogative pronouns in the English language (Boeyink, 1992:113) or for determining motives (Burke, 1945:xv). Due to their pervasive nature in the English language they appear to be self-evident in terms of their application. Yet they are not. They were first established by Aristotle as a formal ontology of being and change and outlined in his treatise in the Topics.

> "These are ten in number: Essence, Quantity, Quality, Relation, Place, Time, Position, State, Activity, Passivity" (Top, 103b20-27).

This ontology forms the basis of Aristotle's Elements of Circumstances, and not as a basis for rhetoric as was mistakenly believed until recently (Sloan, 2010). This has profound implications for any latter applications of this framework, including that of education. These elements have been applied in educational theories such as action learning (Marsick and Maltbia, 2006; Revans, 1980), the 4MAT© system of learning (Harb, Durrant and Terry, 1993; McCarthy and McCarthy, 2006) and in curriculum development (Schubert, 1986:15).

Through categorising these elements, I have provided a common ontology with which to refer to terms that are broadly used in education. I have presented a preliminary theoretical framework on what these elements mean in education in terms of the reflections of my students[167]. These include terms such as course, schedule, venues, timetables, resources, tools, knowledge, reasoning etc. as outlined in Table VI.11. I have further categorised and classified them into a general framework for evaluating the circumstances of action[168].

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[167] See *Table VI.11 Elements of circumstances that were derived from this research* on p. 236
[168] See *Figure VI.13 Coded Categories and Topics of the Elements of Circumstances* on p. 238

IX.3.ii Evaluating educational action

In this thesis, I have advanced the framework (elements of circumstances) as a theoretical basis for planning and evaluating teaching as a moral action. I have revisited Aristotle's extant works and conceptualised a method of practical reasoning that is based on these elements of circumstances. This method of reasoning examines past action in order to inform future choices. I.e. it is a system of reasoning that is based on learning from our own and from other's experiences. This system of reasoning starts with an analysis of past circumstances in terms of what, where, when, who, how, with, which and why it occurred. It then aims to categorise these elements according to Aristotle's accidental, generic, specific and particular categories in order to derive the definitions related to it. From this categorisation (Categories)[169], a general topic (Topics) is determined that is then compared (and contrasted) (Analytics) to general opinion on the topic in order to determine the degree of praise or blame for such actions (Ethics). These are then evaluated against formal standards of behaviour (Politics) and presented rhetorically in the public sphere.

IX.3.iii Theories of learning

I have applied this method of analysis further in order to categorise and evaluate 'How' students learned through a detailed analysis of the term 'How'. The process for student learning that I uncovered is *observe, reflect, plan, act* and *know*. If repositioned according to the Deming cycle's (PDCA Wikipedia, 2017) starting point this would be represented as *plan →act →know →observe →reflect*.

What is of particular interest is that it appears as if human cognition (the students in this case) can be represented more like a heat-seeking missile (HSM) than a bullet. For example, the sequence for a rifle would be ready→aim→fire→hit, but for an HSM it would be ready→fire→aim→hit. The difference comes from the built-in capacity of humans to self-correct their aims along the way. Once the target has been set (ready), and fired, the human is autonomous in determining what course to take or at what pace. Therefore, by giving students the course and the pace before the time, it removes their need to reason for themselves on how to get to the target. This is what

[169] The term in brackets indicate Aristotle's treatise from which the step of analysis was essentially derived.

is meant by 'banking education'. This practice is restrictive both for those students who prefer to work at a faster pace, as well as those needing to work at a slower pace.

This schema is still used today in reflective practice (Carr and Kemmis, 1986; Kemmis, 2009) and quality control cycles (PDCA Wikipedia, 2017). This cycle is also supported by Dierking (1991:4–5) who identify 10 'generalisations' that may contribute to having a meaningful discourse on learning. This cycle had already been documented by Aristotle before 322 BC and that it only resurfaced again in 1620 with Bacon.

These findings also suggest that the current action-learning models are missing a knowledge component. In terms of the derived sequence, knowledge follows action. This kind of knowledge is not the hypothetical knowledge of planning, but the actual knowledge of experience. Action-reflection models such as Carr and Kemmis (Carr and Kemmis, 1986; Kemmis, 2009) Plan-Act-Observe-Reflect or Deming's Plan-Do-Check-Act models (PDCA in Wikipedia, 2017) may require revision in the light of my re-discovery of the origin of these cycles in Aristotle's Posterior Analytics. The implications are that a return to the theoretical roots of Aristotle's metaphysics and practical wisdom may revive the current understanding that we have of these knowledge cycles in practice. This task however lies beyond the scope of this dissertation.

These finding also has implications for rational curriculum planning and other rational planning or quality cycles such as planning by objectives (PBO) that are calling for the aims to be established prior to action…this is in direct conflict with the way humans think and reason. The implication for education is that students need to be given the target i.e. the enemy aircraft, and then be let loose to find their own way there.

IX.3.iv Self-directed learning

My research question on teaching students how to learn has implications for theories of adult education as well. Pratt (1988) acknowledges that "people come to educational situations with varying degrees of prior *knowledge*, *experience (skill)*, commitment (*attitude*), and self-confidence (*competence*)" (Pratt, 1988:163). Pratt suggests that there are three main ways that the educator can approach the teaching situation depending on the stage that the learners needs at the time.

> "Teachers must, in turn, be clear about *what* is to be done (goals and tasks), *how* it is to be done (structure, sequence and pacing), *why* it is important or relevant to the learner (purpose), and on *what basis* the learner's progress will be assessed (evaluation)" (Pratt, 1988:168).

In this research, I have established that providing students with *what* they need to do, and with minimal guidance on *how* to do it, provides them with a strong impetus for self-directed learning. This has affinity with constructivist learning theories. This is however only a part of the approach, as Brockett and Hiemstra (1991) attests.

> "Individuals who enter a learning situation with a clear idea of *how* and *what* they wish to learn are likely to become frustrated and disenchanted if not given the freedom to pursue these directions" (Brockett and Hiemstra, 1991:27).

For the students, direction meant "guidance or learning on how to approach things". Direction came from their own 'sense of direction', from being 'pointed in a direction', or by 'narrowing things down'. The kinds of questions that students raised about direction were 'how to approach things', 'what should be done', or 'where one should be going'. In their usage, direction comes after a 'sense' and 'focus' and leads to 'an approach', 'finding a way' or a 'footing' or personal 'gain'. Having a lack of direction seems to be what prompted the students to find their own way.

This has implications for facilitating SDL learners, in that the 'How' and 'What' should be de-emphasised in preference of the How. Pratt (1988:163) recognises that each learner comes to the learning situation with different needs. When the learner needs direction e.g. exhibits a lack of competence, the educator needs to provide clear instruction on i. *'what'* needs to be done i.e. clarity on the goals and tasks. When the learner lacks confidence, the educator needs to provide ii. strong support on *'how'* to perform the task or learning by providing clear structure, sequence and pacing. When the learner is unclear on how the objectives relate to him, they require a strong iii. purpose on *'why'* the task or learning is important or relevant to the learner. When the learner needs a measure or yardstick to ascertain whether he has reached the goal, he needs to know *'how much'* or on *'what basis'* he will be measured.

Based on the elements of circumstances, in order to be practically wise (not ignorant of the circumstances), an educator also needs to determine how much time *(when)* a learner needs, at what time of their lives *(when)*, *with* what tools and

resources, and *which* topics or problems the learner needs to engage with. More importantly the role of the learner and the educator (*who)* needs to be acknowledged in the SDL situation.

IX.3.v Theories of reflection

Central to this praxis is enhancing the professional's abilities for "reflecting-in-action" (Schön, 1987). A secondary aspect of a reflective praxis is teaching and evaluating reflection in the classroom. There are numerous frameworks or models for assessing reflective practices (Kember et al., 2008; Kember et al., 1999; Kitchenham and Chasteauneuf, 2010), yet guiding reflective processes in the academic sphere are less prevalent.

Two of these models or frameworks are used are the DEAL model (Paul and Elder, 2001:5) as well as the Race (2002) model. Through this research process I have argued why these models are based on the elements of circumstance. The DEAL model (2001:5) examines specific questions around 1. Describing the learning experience in terms of *what* happened, *where* it happened, *who* were involved, *when* it occurred, and *why* it happened. The second level of reflection is examining the learning experience in terms of the intended goals. The final level of reflection is articulating the learning in terms of *what* was learned, *how* it was learned and *why* it is important. The Race model examines reflection around "the key interrogative word - *who, what, when, where, why and how*, for example" (Race, 2002).

Having established that these frameworks have been derived from Aristotle's elements brings with it two implications. Firstly, Aristotle's ontology is based in his Ethics on practical wisdom, and secondly includes two additional elements, namely 'with' and 'which'. This finding advances the use of such a reflective framework in practice. In this dissertation, I have provided a more comprehensive model for my students to use in their reflective diaries[170] as well as analysed what each element means to them[171]. This theoretical framework provides a further theoretical basis for teaching and evaluating reflection in the classroom.

[170] See Figure III.6 Reflection Pyramid on p. 80.
[171] See *Table VI.11 Elements of circumstances that were derived from this research* on page 238.

IX.4 Practical implications

The teaching of research, the research of my teaching and the teaching of students to learn has some implications for practice as well. In this section I reflect on my personal epistemologies and the effect that this approach had on the students and other members of the faculty, how it supports experiential learning, as well as making a contribution to the practices of research-based learning in the UG curriculum in IS.

IX.4.iEpistemology of praxis

Learning how to teach in Higher Education does not merely require attending a course on teaching, but the development of a personal epistemology that guides one's teaching methods, styles and strategies (Berthiaume, 2009:216). Developing an epistemology of praxis requires educators to reflect on their own practices and how this influences their teaching decisions. These epistemologies may not necessarily contribute to general theories of teaching, yet they do contribute to specific practices of teaching. As an example of the personal epistemology that I developed through this process can be represented by the six following key characteristics:

1. *Freedom to learn*: Liberating students to express their individuality and explore topics outside the course
2. *Unstructured*: *Unstructuring* the curriculum moves students to new insights on how society is constraining their thoughts and beliefs
3. *Thought provoking*: Open discussions and sharing of diverse opinions is very challenging and *though-provoking* for the students
4. *Setting high expectations*: Setting *high expectations* is one of my individual characteristics that recognises excellence in everything I do, thus demanding the same from my students
5. *Being present*: *Being present* allows teaching to happen in the moment of action
6. *Intuitive teaching*: *Intuitive teaching* is expressed as a confidence in the lecturer's abilities to direct the course

These characteristics advances to the discourse on critical pedagogical practices in the sphere of adult education through the practicing of critical emancipatory action research (Carr and Kemmis, 1986; Grundy, 1987; McKernan, 1996) and reflecting on how rational curriculum planning constrains our freedom's to teach.

IX.4.ii Institutional effect

Students, as well as other academics, took notice of our activities in class and on campus. This meant that they also attempted these practices in their own classrooms (TA10.1, TA21.5). The problem is that they do not necessarily understand 'Why' I did certain things in the classroom, and therefore adopted the outward appearances of what we did, and not the thought processes that went into them[172]. This also meant that they did not understand why these practices such as not having any course outlines, textbooks or lesson plans occurred (TA18.1, TA18.3), and may therefore either ignorantly adopt these practices or condemn them. In this way, I also needed to alert the students to the sensitive or critical nature of such teaching.

Therefore, I explained to them the choices or actions that I took so that they could understand the "method behind the madness" (TA22.1, TA22.2 TA22.3). Some students may also not agree or be able to adapt to such a critical approach to education and may remain critical and demand the structure and rules which they have becomes accustomed to (TA13.6).

> I did not like it and it did not work for me. I am someone that like **structure**, even if it lets me feel as if I am in a prison. With structure I know what to do and when. (C4_TLT)

This teaching approach represented a different philosophy to traditional education. One of praxis and not epistemology. The emphasis is thus on action and reflection, and not theoretic knowledge. This represents a strong institutional effect, in terms of how both educators and students have been socialised and have come to expect. For these reasons, a curriculum of praxis requires a revision of how we institutionalise our teaching practices. Good management support from one's senior structures as well as from lecturers to stand-up for the students becomes essential. This support was there for me by the HoD of the department.

> I have noticed an unparalleled devotion to and love for SAU students, and in particular the IS students. I believe it is his attitude that makes the difference in his classes and also made him walk the proverbial second (and even third) mile and inspired him to invest many extra hours in the students on and off campus (HoD, ETEA, 2012).

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[172] See Nonaka (1994) on Tacit and Explicit knowledge in organizational knowledge creation.

In the end however, this support disappeared as a result of the HoD stepping down, and my contract was not renewed at the university. On the other hand, the students have gone on to achieve great things in their personal and work lives as a direct result of this teaching.

IX.4.iii Experiential Learning

This research emphasises experiential learning (Kolb, 1984) by teaching students how to make sense of the world around them through a process of research-based learning. It is important therefore to know how we learn from our experiences and how to implement strategies to direct such learning. Experiential learning is frequently represented as a cycle of concrete experience→ reflective observation→abstract hypothesis → active testing (2007). Zull (2002) suggests that these cycles map directly to parts of the brain i.e. sensory and post-sensory (concrete experience)→temporal integrative cortex (reflective observation)→frontal integrative cortex (abstract hypothesis)→premotor and motor (active testing) (in Kolb and Kolb, 2005). These experiential learning cycles are also reflected on how we structure meaning (Mezirow, 1990:2). A revised understanding of 'How' we learn from our experiences, as presented in this chapter, suggests that we revise the current understanding of how we structure meaning from our experiences as outlined by Mezirow (1990:2).

IX.4.iv Research-based learning

Research pedagogy as a practice in Higher Education is still in its infancy, with few institutions in SA establishing the role of a research professor in IS (Cloete, Mouton and Sheppard, 2015). This is evident in the separation of Teaching and Research structures at SAU, even at proclaimed research-led institutions. Integrating research into the curriculum is not without its own difficulties.

This dissertation emphasised the development of a Research-based approach to learning. This is part of the collection of active learning approaches such as blended learning (BLL), case-based learning (CBL), collaborative learning (COL), authentic learning (AUL), action learning (ACTL), problem-based learning (PBL), question-based learning (QBL), project-based Learning (PRBL), work-integrated learning (WIL), inquiry-based learning (IBL). These approaches all encourage that learners take an active role in constructing meaning as opposed to the more passive approach of lecture-based learning where the learner is a recipient of information. Active learning approaches primarily transfer responsibility for learning to the student.

Traditional education is based on a process of scaffolding (Hammond and Gibbons, 2005; Maybin, Mercer and Stierer, 1992), a process whereby educators systematically build on students' prior knowledge and skills as they develop.

The approach that I adopted was the opposite of scaffolding. I refer to it as unstructuring. Unstructuring required me both to gradually remove false beliefs from students as well as the comfort of a course structure and outline. Without such structures, students both learned how societal structure constrain them as well as to encourage them to develop their own structures. A related concept in education is referred to as 'unlearning' (Newstrom, 1983:36). In line with (Saddington, 2000), it is the role of the lecturer to restructure his approach to teaching in order to bring about a new social orderIt is therefore suggested that theories of active learning approaches need to consider the value of unstructuring in the curriculum and also the teaching environment.

IX.4.v RUGC in IS

Research and teaching are central to the growth and development of the discipline of IS, yet the emphasis in undergraduate courses remains on the theories and skills that are required in the practice of IS, as is evident in model curricula and faculty calendars, and not on the foundational skills of research or inquiry-based learning that experts in the field acquire through years of practice. This thesis advances the view that students and lecturers can learn more about the subject together in a dialectical process of inquiry. The current practices are that the lecturer researches the subject or field and then presents his findings to the students.

The findings indicate that this approach detracts from a very important part of learning for the students, i.e. the constructing of knowledge from experience. All the skills of finding information sources, identifying a problem, synthesising the research, compiling a presentation and presenting remains with the lecturer. In an epistemology of praxis, students are given these tasks, and in the process learn more about how to learn as well as learning more about the subject. The learning skills and competencies that students develop in the process are the kinds of skills and competencies that are referred to as graduate attributes (Barrie, 2007; Bridgstock, 2009), higher-order thinking skills or 21st century skills (Saavedra and Opfer, 2012) that span disciplinary boundaries.

This approach has implications both for the teaching of research as well as teaching other more theoretical and even practical subjects in IS. Let me illustrate this point. In the assignments where students were asked to research the theories and methods in IS[173], they were formed in groups and were tasked to research and present on the topic that was given them. My role was to identify the topics that the students needed to research, ensure that they were equipped with the skills and resources for finding peer-reviewed academic articles (through the help of the faculty librarian), skills to synthesise and write the material (with the help of the writing centre), and even skills to present their findings.

In this way, the students were prepared to participate in the discourses in IS, essentially preparing them to be a researcher and/or teacher in IS. This approach can be extended to practical skills. For example, in programming or systems design, students can be given a real-world problem to solve. They then use the internet (wiki's, blogs, support groups etc.) to find possible solutions to their problem. They support each other in groups, and the lecturer is available just as another resource, and not necessarily an expert. In this way, students learn more about the subject in a way that they would naturally learn in practice.

In addition to existing theories on integrating teaching and research (Elsen et al., 2009), I advocate that the skills and practices of research need to be taught as a reflective practicum and not in the traditional way of providing students with examples of prior research or theories of research such as research methodology or research writing books. These examples and theories only become relevant through the practice of research and the process of reflecting on one's actions. In this way, I advocate the teaching of research as a sequence of assignments that are performed either individually or as a group, that leads students through the principles and practices of doing actual research in order to achieve personal and course goals as opposed to learning about research.

[173] See *Appendix XII.5.i Representative Seminar Assignments*

IX.5 Conclusion

In this dissertation I have reflected on the choices that I made in the classroom on how to teach students to learn how to research in IS. This has affected many of the students in my class in a number of positive ways as outlined in Chapter VII and VIII. It has helped them with their confidence (self-efficacy) and knowledge to achieve in whatever field or direction they have chosen. Only time will tell how far they go. In a difficult job market in SA, some of these students have successfully been employed at large corporates in graduate development programmes. Others have turned their passion or hobbies into their careers. Still others have continued with their studies. Hopefully a few would have learned how to teach as a result of my teaching.

The driving force behind this quest has been a burning desire to change our education system from one of controlling what people should think and learn, to one that sets them free to think "with their own thoughts" and learn what their heart's desire. In the end it may appear as if the education system itself is entrenched in its ways. Many lecturers have been socialised on a diet of paper and empty words, and this is what they feed their students in turn. This does not ignore the great sacrifices that the authors of these books had to make in order to produce them. It is just that in this way that the book has becomes mightier than the pen i.e. the immense process of learning what is involved in writing such books are lost to the students that are conditioned to regurgitate them. Students in this course are wanting to get a degree in order to get a good job and have a good life. The problem is that they feel entitled to this, despite the efforts that are involved in understanding oneself and the world around you. Until our educators can return to the basics of teaching students how to Reason, wRite and Rhetor, our diets of Reading and Regurgitating will not nourish our societies' need for meaning in their lives.

As Nietzsche says:

"He who has a *why* to live for

can bear with almost any *how*"

(In Frankl, 1985:76).

Chapter X Conclusion

> "If their compositions are based on knowledge of the truth, and they can defend or prove them, when they are put to the test, by spoken arguments, which leave their writings poor in comparison of them, then they are to be called…philosophers"
> (Socrates in Dialogues of Plato, Phaedrus, 278)

RESEARCH is the process of re-visiting (re-searching) existing concepts in the light of new insights or theories (research M-W, 2017). By examining well-known concepts of teaching and learning through the lens of a critical epistemology of Praxis, has allowed me to represent these old concepts in a new light.

X.1 Introduction

In Chapter IX, I collated the empirical analysis from Chapters VII and VIII into a conceptual theory of experiential teaching and learning, essentially integrating the two questions of 'how' we learn to teach and 'how students learn into a process framework. In Section 2, I outlined how the previous analysis provided support and insights into my research questions. In Section 3, I formalised this process into a epistemology of praxis for teaching research and evaluate this framework based on Whetten's questions (1989:494–95) for evaluating a theoretical contribution. In Section 4, I evaluated the research contributions in terms of the philosophical, theoretical, methodological, disciplinary and practical contributions and highlight the research limitations and areas for further research. I end this process with a reflection on my thesis statement which I started out with.

X.2 Support for my research questions

Following is a summary, setting out the research questions which were important to me during the teaching of this course and a link to the relevant chapter or section or empirical observation where I answered them.

Table X.1 Research questions, key findings, and empirical observations

RQ	Key Findings	Observations/ Sections/ Chapter
RQ0	***How does one learn to teach oneself in higher education?***	***Ch. IV,VII & VIII***
	Teaching in Higher education	IV.2
	Teaching in disciplines	IV.3
	Teacher development in HEI	IV.4
	Expert teaching	IV.5
	Reflective Practice	IV.6
	Designing the course as a reflective practice	VII.2
	Creating assignments that emphasise action and reflection	VII.3
	Conceptualising a research curriculum	VII.4
	Reflecting and improving on my practices	Ch. VIII
RQ1	***How can I get the students to participate in class?***	***Ch. VIII.5 (p. 362)***
	By giving them a voice through listening to them	WU,SD48.2
	By teaching them how to research so that they can back up their arguments.	SD47.2
	By providing them with a platform from which to speak	WU,SD48.2,SD48.1
	By encouraging them to stand up and speak for what they believe in.	
RQ2	***How can I teach students to become critically reflective?***	***Ch. VIII.4 (p.342)***
	Waiting to be taught is a barrier to self-realization	SD4.2, SD21.1
	Students can be guided through an informal manner or learn by example	RP8.1, RP14.2,RP15
	By providing them with a procedure for reflection allows them to evaluate their own thoughts and actions	RP14.1,RP13.3,RP13.2,RP13.1
	This allows them to assess their own abilities without the aid of the curriculum or lecturers	RP11.1,P11.2,P11.4,P11.4
	Being critically reflective means having the ability to reflect on one's own circumstance that constrains one's actions.	RP11.3,P10.1
	Students need to be sensitised to what is keeping them from being who they can be.	RP10.1, RP1-5
RQ3	***How can I make research fun for them?***	***Ch. VII.4 (p. 269)***
	By making it practical experience	RP1,RP14.1,RP10.3,RP8.2,RP8,RP14.3
	By making it an unforgettable experience	SD1.1,1.2,SD3.1
	By benefitting students' future	SD6.1
	Not depending on notes and slides	SD7
	Giving students creative freedom	
	Giving students the courage to pursue their dreams	
RQ4	***How do I teach students to conduct research of their own?***	***Chapter VII (p. 240)***
	Designing a course where students and lecturers learn together.	VII.2
	Embedding reflective practice in the curriculum.	
	Emphasising 'How' to learn and not 'what' to learn.	
	Learning by doing' through assigning research tasks and activities	VII.3.i
	Structuring assignments to direct students to research their own lives, lives as a student, to student life and on to the greater context of life and careers.	VII.3.ii
	Specifying 'what to do' and not 'How to do it.	VII.3.iii
	Creating a conducive research environment.	
	Conceptualising a research curriculum	VII.3.iv
	Provide students with the experience of 'real research'	
	Culminate in public event and dissemination	VII.3.v
	Being in harmony with my students	VII.4

RQ5	***How do I teach students to be self-directed?***	***Ch. VIII.3 (p. 311)***
	Students need to realise their need to learn for themselves, by themselves Learning comes from pointing students in the right direction and then encouraging them to do their best in order to understand what they're experiencing. Teaching students to question everything Teaching them how to approach sensitive issues DON'T spoon-feed them Teach students how to pay attention Align the lesson with their perspectives Give them room to reflect This kind of learning takes time…it can't be forced	SD35.1-SD35.4 SD39.3, SD38.2 SD41.1 SD43.2,3 SD43.3 SD43.10 WU
RQ6	***What does it mean to teach?***	***Ch. VIII.2 (p. 299)***
	My teaching approach can be represented as follows: *Freedom to learn:* Liberating students to express their individuality and explore topics outside the course. *Unstructuring* the curriculum moved students to new insights on how society is constraining their thoughts and beliefs. *Thought provoking:* Open discussions and sharing of diverse opinions is very challenging and though-provoking for the students. *Setting high expectations* is one of my individual characteristics that recognises excellence in everything I do, thus demanding the same from my students. *Being present* allows teaching to happen in the moment of action. *Intuitive teaching* is expressed as a confidence in my abilities to direct the course.	 VIII.2.i VIII.2.ii VIII.2.iii VIII.2.iv VIII.2.v VIII.2.vi

In this dissertation, I have reviewed the general philosophies of higher education, the theories and practices of teaching and learning as well as the fundamentals of a reflective practice in aid of exploring possible answers to the question on RQ0 "How does one learn to teach oneself in Higher Education" and "How does one teach students 'How' to learn.

These questions were prompted when I was struggling as a novice educator to get students to participate in class (RQ1). It was only through systematic and in-depth coding of more than 60 end-of-course student reflections that I uncovered the answer to this question, as encapsulated in the table under RQ1 and in detail in *Chapter VIII.5 Class participation* (p. 362). Teaching students to become critically reflective (RQ2) initiated a journey of discovery, where I set out to teach students to become critically reflective, and in the process became critically reflective myself. This process is analysed in detail in *Ch. VIII.4 Teaching critical reflection* (p.342).

The course was a course in 'Research methods and philosophy', and in my attempt to make learning fun (RQ3), I developed a new curriculum founded on the principles of reflective practice and research-based learning. This analysis is set out in *Ch. VII.4*

Research curriculum (p. 269). Whilst struggling with concerns of originality in research, I explored the question of how to teach students to conduct research of their own (RQ4). I explore the findings in *Chapter VII* How I designed the course *(p. 240)*. From this research came the realisations that for students to do original research, they need to move away from waiting to be told what to do and imitating others and become more self-directed in their learning (RQ5). I set out the propositions for this journey of self-discovery in *Chapter VIII.3 Directing learning (p. 311)*. In conclusion, I finally arrived at the point where I started out with in this research i.e. (Q6) What does it mean to teach? I set out these propositions in *Chapter. VIII.2 My teaching (p. 299)*.

With this table I set out what my research questions entailed as well as a brief explanation of the key points and how I answered these questions in the previous chapters. In the next section I formalise this process in an epistemology of praxis for teaching research in Information Systems.

X.3 Theoretical statement

An epistemology of Praxis needs to be evaluated on the differences that it has made in the lives of the people that were touched in the process, and not on its theoretical contribution. The value of a theoretical framework is for other practitioners to evaluate such practices in their own context (Thomas, 2010:576). For this reason, the theoretical contribution of an epistemology of praxis are presented according to Whetten's (1989) framework.

X.3.i Framing a theoretical contributions

Whetten (1989), provides an elegant model derived from years of experience as editor of AMR that can be used to evaluate a theoretical contribution[174]. This model aims to answer the following questions of theory namely What, How, Why, Who, Where, When that constitutes a theoretical contribution[175]. I have used these elements as represented in Table X.2 *in order* to frame my theoretical contribution[176]. I have modified it slightly to align it with my revised understanding of Aristotle's Elements

[174] A model that appears to be based on Aristotle's elements of circumstances.
[175] Whetten claims that the model is derived from (Dubin, 1978) but doesn't reveal the usage of the elements of circumstance, so I must assume that it is Whetten himself who introduced them to the discourse on theory development.
[176] See Table XII.10 What constitutes a theoretical contribution (Whetten, 1989 490-493)

so that 'what' becomes 'which' in order to maintain its intended function as action, and 'with' has been added as the eighth element to indicate resources and tools.

Table X.2 Theoretical contribution (adapted from Whetten, 1989:490-493)

Element	Ref	Description	Contribution
What	**Moral Actions**	What refers to what we do and not what we know. The question is thus what did the researcher do and how did he do it?	The methods of action and reflection were applied rigorously throughout the study. The methods of dialectics as outlined in the Topics was used. The research on categories, topics, dialectics, ethics, rhetoric and politics was extended to primary sources of Aristotle in English and in some cases the original Greek. All the teaching, primary research, data coding, analysis and write-up are original.
How	**Methods**	"How are they related?" This shows patterns and links.	This was demonstrated in the action-reflection cycle.
Who, Where, When	**Context**	Contextual aspects.	Data was derived from 60 student reflections and my own from a 3rd year course at a HDI over a period of three years It has application in any field of education.
With	**Resources**	What tools, resources and expertise did the researcher use/require/acquire in this process	Over 1000 reflections were read, 64 of these were loaded in NVivo for analysis and coded. Mendeley was used for reference management and includes more than 4000 articles, books and web references accessed over the period 2011-2017. Evernote was used to capture my own reflections. Dropbox to store files. These were also provided/taught to the students.
Which	**Theories, concepts**	Which more appropriately refers to the factors and theories used. "*Which* factors (variable, constructs, concepts) logically should be considered as part of the explanation" also other theories relating to the same problem.	A framework for all eight elements of circumstances was presented in the theoretical sections, however the scale of the task exceeded the time available to analyse all 8 elements. All eight were coded in terms of their 4 causes and effect. The element 'How' was further explored using the method of analysis as outlined in Aristotle's Topics. This presented the five elements as indicated in Section IX.2.ii379.
Why	**Reason**	"What are the underlying psychological, economic, or social dynamics that justify the selection of factors and proposed causal relationships?	These elements are found in human cognition (metaphysics) and reasoning (Analytics), theories of causality, and moral conduct of Aristotle. It finds application in adult education as espoused by Newman, Dewey, Whitehead, Schön and Freire. Also, some aspects from Steiner education which I had as a child. Finds its roots in critical theories of Kant, Frankfurt School, Foucault and Derrida.

In this table I represent the components that make up the theoretical contribution that I have made in this dissertation. This includes *what* I did, *how* I did it, *who*

participated, *where* it took place, *when* it occurred, *with* what tools and resources, *which* factors and theories were involved as well as *why* it is significant.

X.3.ii Theoretical Framework

The following table frames the theory of a reflective educational practice with reference to the structural components of a theory by Gregor (2006:620). This framework allows IS researchers to "1. identify what theory is composed of in and 2. To analyse the components of their own theory and the theory of others" (Gregor, 2006:620). These components refer to:

- *Theory overview:* Provides a brief overview of the theory
- *Theoretical component:* Identifies what the theory is composed of and how it is instantiated
- *Means of representation:* Representation of the theory in some physical way Includes words, signs, symbols, diagrams, graphs or models that represent the theory. Also requires constructs or the entities on which the theory depends
- *Constructs:* The phenomena of interest in the theory. Primary constructs should be well defined i.e. observational, theoretical or collective terms
- *Statement of Relationships:* Shows relationships amongst the constructs. These may be associative, compositional, unidirectional, bidirectional, conditional or causal
- *Statement of Scope:* Indicates the degree of generality of statements of relationships e.g. some, many, all, never with boundaries showing the limits of generalisations
- *Causal Explanations:* Giving statement of relationships among phenomena that show causal reasoning
- *Testable Propositions:* Statement of relationships between constructs that can be tested empirically
- *Prescriptive statements:* Statements in the theory of how people can accomplish something in practice e.g. construct an artefact or develop a strategy. Includes imperatives such as 'a' should include 'b' and 'c' but not 'd'

Table X.3 Epistemology of praxis for teaching research

Theory of reflective educative praxis	
Theory Overview	
The theory of reflective education praxis describes the cycles of reflective action that occurs between an educator and a student reflecting on particular circumstances. The cycle is based on empirical observations of students' reflection on how they act and reflect on their actions and is placed into a sequence of increasing realization. The theory is derived from Aristotle's theory of practical wisdom (phronesis) and is represented by means of Causality and the Elements of Circumstances as outlined in his treatises in the Physics, Metaphysics, Categories, Analytics, Ethics, Politics and Rhetoric[cxxviii].	
Theoretical Component	**Instantiation of Action and Reflection in Education setting.**
Constructs	Process of knowledge construction. From perception to knowledge. Sequential process of i. Perspectives→ii. Form→iii. Planning→iv. Experience→v. Knowledge that interacts at the level of action. Knowledge (v.) is derived from reflecting on all the elements of circumstances (*When, Where, What, How, Who, With, Which, Why)* and not only 'How' as represented here. Reflections can occur on the past, the present or for the future[cxxix]
Means of representation	Diagram, Process Cycle See Figure IX.3 Action-reflection dynamic between lecturer and students on p. 383.
Statement of Relationships	Learning from action is a sequential process from i→v and rarely goes in the other direction in meta-cognition.
Scope	Effective reasoning can range from particular to general statements (referred to as inductive reasoning), or from general to particulars (referred to as deductive reasoning), or through a process from sensible to general, and from particular to general referred to as abductive.
Causal Explanations	Based on Aristotle's four causes as encapsulated in the physics and metaphysics i.e. material cause→formal cause→efficient cause→final cause→ and the effect (the thing which we aim at). The explanation of the cause of an action is the reverse sequence. This is referred to as the converse-sequence or consequence[cxxx].
Testable Propositions	Based on the circumstances or the 'facts of the case'. *What* happened, *where* did it happen, *how* did it happen and so forth for all the other elements. This theory was only tested with 'How'. See *Section XII.4* in the Appendix for testable propositions for 'How'
Prescriptive statements	This theory was only tested with the element 'How'...referring to 'how' to teach and 'How' students learned. See Section *I.1.iXII.4.viii* in the Appendix for prescriptive statements that are particular for a reflective practice on How I taught in this course.

The preceding table summarises the theoretical components of the epistemology of praxis for teaching research in IS. This cycle of reasoning represents the dynamic experiential learning cycle between educators and students, and how knowledge is derived from reflecting on those experiences. For a full description of this process, see *Chapter IX.2.iii Experiential teaching and* learning cycle on p. 382.

X.3.iii Evaluating the contribution

Whetten provides us with a framework to evaluate the extent of a theoretical contribution based on Whetten's (1989:494–95) questions (See *Table X*.4 below). I have attempted to complete this as best possible, based on my current understanding of the theory that I am advancing. The problem that I have in representing my theoretical contribution is that there are two theories that are intermingled; firstly, the theory for a reflective research practice in higher education, and then an extension to the theory of circumstances as inscribed by Aristotle in his Nichomachean Ethics. It thus becomes difficult to differentiate between the two separate contributions when formulating this table.

Table X.4 Evaluating a theoretical contribution (Whetten, 1989:494–95)

#	Element	Description	Contribution
1	**What's new?**	"Does it make a significant value-added contribution to current thinking?"	Provided empirical evidence for Aristotle's model of meta-cognition as well as expanded it to the second level to show how each cycle works. These were derived from my teaching practice where students reflected on how they learned to become critically reflective and teach themselves. This concept is not new, but adds to the BOK of self-directed learning and critically reflected practice. This research does bring into question the value of 'planned' and 'structured' curriculum to aid student development. It also brings into question the currently used cycles of planning such as the Deming and/or action research cycles.
2	**So what?**	"Will the theory likely change the practice…in this area?"	It is suggested that any of the theories that are based on what is traditionally known as the primitive interrogatives (5W's and H's) be re-investigated to update their theoretical basis. A list of these are provided at the end. Reflective cycle models based on Aristotle's meta-cognition cycles also require revision. Lastly, our teaching practices (of banking education) is in need of revision as well.
3	**Why so?**	"Built on a convincing argumentation and grounded in reasonable, explicit views"	Arguments and methodology have been provided in my dissertation.
4	**Well done?**	"Are multi-theoretical elements (What, How, Why, When-Where-Who) covered?"	This thesis has rediscovered these elements (what, where, when, why, how, who, with, which, why) ab initio and has shown how they can be applied in practice, both as an aid to reflection and for planning and knowledge development
5	**Done well?**	"Is the paper well written, Does it flow logically, are the central ideas easily accessed? Is it enjoyable to read?"…etc.	I have tried to make the arguments and presentation of the data as readable as possible, but it is a complex topic. Hopefully the model is much simpler.

6	**Why now?**	"Is this topic of contemporary interest to scholars in this area?"	There are many disciplines that either use or apply variations of these theories that I have re-discovered that may be interested in these findings.
7	**Who cares?**	"What percentage of academic readers are interested in this topic?"	Educators that are self-taught. Universities wishing to move towards research-based curriculum. Practices based on the elements of circumstances. Practices based on the action-reflection cycle. Students that have been part of this process.

The purpose of these questions is to frame the factors that determine the value of the contribution for a conceptual paper (in this case a dissertation) (Whetten, 1989:494).

X.4 Research contributions

The following section describes the philosophical, theoretical, methodological, disciplinary and practical contributions of this dissertation, and includes the research limitations as well as suggestions for further research.

X.4.i Philosophical contributions

The discovery of the elements of circumstances as originating in the Ethics of Aristotle has significant implications for many diverse fields of study and practices as Sloan (2010) indicates. In this dissertation I have situated these elements in the concept of Aristotle's practical wisdom (phronesis) of knowing what to do, how to do it etc. depending on the circumstances. The analysis of such a process has been obscure (Anagnostopoulos, 2009; Aydede, 1998; Eikeland, 2006) but is essentially dialectical. In this dissertation I have revived an approach to dialectical reasoning from Aristotle's works. This system of reasoning extends from Aristotle's Categories, the Analytics, Ethics, Rhetoric and Politics. The conceptual elements are based on Aristotle's elements of circumstances namely *When, Where, What, How, Who, With, Which, Why*. Categories are based on Aristotle's Categories of I. Perception (formal cause), II. Form (formal cause), III. Planning (efficient cause), IV. Experience (final cause), and V. Knowledge (effect/outcome of the causal chain). Presenting these in the public sphere is based on Aristotle's Rhetoric177. Forensic speech (Judicial) specifically looks at past voluntary and involuntary actions[cxxxi]. Arguments about the goodness of human conduct come from Aristotle's Ethics. Actions in the public sphere are from Aristotle's Politics.

[177] See *VI.5 Method of Analysis* on p. 206.

These findings and the obscured revelations that Aristotle's original text may present allows me to highlight which theories may be affected by my discovery[178]. These theories have either been situated in the works of Cicero, which means that they involve mainly speech or rhetoric. The fields that may be affected by my findings are theories that are used in drama and film industry (Burke, 1945; Goffman, 1963), Journalism (Boeyink, 1992:113), Education (4MAT, Action Learning, Curriculum Planning, Peer questioning, academic plans) (Harb, Durrant and Terry, 1993; King, 1993; Lattuca and Stark, 2011; Marsick and Maltbia, 2006; McCarthy and McCarthy, 2006; Race, 2002; Revans, 1980; Schubert, 1986), Frameworks for developing and evaluating theoretical contributions (Gregor, 2006; Roode, 1993), theories in Information Systems (Abowd et al., 1999; Maheshwaree, 2009), IS Architectures (Bertolino, 2007; Zachman, 1987; Zachman, 1996), Business strategy and planning (Serrat, 2009; Wikipedia, 2017) TSW Evernote[cxxxii] and theories on moral reasoning (Bellah et al., 2007; Flyvberg, 2001; Gagnon and Simon, 2005; Jonsen and Toulmin, 1988). Some of these theories have been established for a long time, and I'm not sure to what extent they will be impacted if these theories are extended to incorporate all the elements of circumstances as well as to consider the spirit and context in which they have been established. Further research is required to research the implications of this revised understanding on the theories that are derived from these elements.

X.4.ii Theoretical Contribution

This research contributes to theories of learning, theories of teaching as well as theories of research. The first two of these contributions will be examined here, with theories of research addressed in the next section on methodological contribution. This research contributes to learning theories of constructivism and humanism and the modern concept of connectivism.

It contributes to theories of constructivism by providing an empirical example of research-based learning that analyses how students learn from experience, and validates a model of meta-cognitive process originated by Aristotle. This has theoretical implications for other model of learning such as stages of learning (Piaget and Inhelder, 1958), social learning theories (Bandura, 1969), experiential learning

[178] See Table XII.9 Contemporary theories and frameworks based on Aristotle's elements of circumstances.

(Kolb, 1984), Action-reflection models (Carr and Kemmis, 1986; Kemmis, 2009), and planning cycles (PDCA Wikipedia, 2017).

The research also contributes to learning theories of humanism, where the learner (and educator) is placed central in the learning process (Gage and Berliner., 1992). Modern curriculum practices have placed the discipline and subject at the core of the curriculum. This practice has de-emphasised learning and the role of the learner as central to expertise. This research has provided an epistemology where the learning process (research) has been placed centrally in a curriculum where the learner develops their capacities to make sense of their worlds. It has provided examples of a process and assignments that are able to transition learners from a level of dependency to a level of self-direction and critical thinking. In this way, this research also contributes to theories of self-directed learning (Merriam, 2001), transformative learning theories (Mezirow, 1997) and reflective practice (Mezirow, n.d.; Schön, 1983) and active learning approaches such as research-based learning (Brew, 2010; Brew, 2003) and problem-based learning (Ryberg and Norgaard, 2013) at an undergraduate level in higher education.

This research also contributes to modern theories of connectivism (Siemens, 2005:4) by de-emphasising the 'textbook' and redirecting knowledge acquisition as a social process that uses modern technologies such as the internet, wiki's, blogs and academic per-reviewed resources for learning and knowledge construction. It also illustrates how students are able to learn through the use of technology, in a resource constrained environment.

Theories of teaching emphasise the practical nature of education. This research builds on a third kind of theory for education, namely a epistemology of praxis (Carr, 2005; Grundy, 1987). Praxis integrates the theory and practice of teaching in a dialectical process of joint discovery. This thesis contributes to our understanding of the critical theory of adult learning and education (Mezirow, 1981) as represented by Kitchenham (2008) and based on the critical theories of Habermas (1972) and the critical pedagogies of Freire (1998) together with the principles of phronesis and praxis of Aristotle as applied in this dissertation. This research emphasises the emancipation of the educator and learner through student-centred facilitative learning humanistic practices.

X.4.iii Methodological contributions

This dissertation makes a methodological contribution in three ways: firstly, by exemplifying an epistemology of praxis for teaching research in IS that is built on Aristotelian gnoseology of phronesis or practical wisdom, secondly by providing a method for Phronetic Social science based on the tenets of Aristotelian praxis, and thirdly by uncovering a method of qualitative data analysis (QDA) as based on Aristotelian dialectics, categories, analytics, ethics (phronesis), rhetoric and politics.

This research is an example of Phronetic Social Science, following an Aristotelian approach to the study of my teaching and learning practices. Phronetic Social Science (Flyvberg, Landman and Schram, 2012a) is a philosophy for social science that extends from Aristotle's initial work on phronesis. PSS is a Science in search of a method as most practitioners tend to disregard theory and method in favour of practice, i.e. practicing phronesis as an applied science of practical action.

> "But no one had developed the theory and philosophy of phronesis into a practical methodology that could be applied by researchers interested in actually practicing a phronetic social science." (Flyvberg, Landman and Schram, 2012a:1).

This state of affairs has changed, with a number of suggested methodological contributions for PSS (Flyvberg, Landman and Schram, 2012b) and a number of practical case studies of how phronesis (and praxis) may be carried out in actual research (Flyvberg, Landman and Schram, 2012a).

> The validity of phronetic case studies therefore does not come from theoretical generalisation, but *"through the connections and insights it offers between another's experience and one's own"* (Thomas, 2010:579).

In this dissertation, I have followed a different approach to derive a methodology for evaluating PSS, by returning to Aristotle's treatises on phronesis. In this way I have traced the concept of practical wisdom (Phronesis) to making good choices, a process that Aristotle outlines in his dialectics. This process is operationalised in the public sphere (politics) through a process of rhetoric. In brief, this process mimics normal social actions in a political society, something that Aristotle attempted to understand more than 2300 years ago.

In this dissertation, I extend this line of reasoning to a method of Qualitative Data Analysis. Modern methods of qualitative research (Corbin and Strauss, 2008) uses the concepts of Categories and Themes. This research has indicated how Aristotelian Categories and Topics can be used in Qualitative Data Analysis (QDA) (Saldaña, 2010). Commonly used dialectical lines of argument that have been appropriated by QDA are techniques such as similarity, difference, frequency, sequence, correspondence or causation (Hatch, 2002:155). I have also shown how Aristotle's theory of causality can be used to indicate consequence and derive definitions from such sequences. I have also demonstrated how such definitions can be used to derive general topics of conversation, that can be compared to public opinion on the topics. In this way I have revived an ancient method of political reasoning (praxis) for application in analysing the discourse of students on 'How' they learned and 'How' I taught.

X.4.iv Disciplinary contributions

This thesis constitutes a contribution to the field of Information Systems (IS) for four reasons namely; 1) The research provides a curriculum for introducing research in the undergraduate IS curriculum; 2) The empirical situation was a research methods and philosophy course in IS; 3) The participants were IS students and most of them became IS graduates and IS practitioners; 4) The topic that the students researched was an IS topic namely "The use of smartphones amongst students at a University" and 5) The research was done by an IS lecturer in and IS department.

It would be misleading, however, to refer to this contribution as an ICT artefact, despite persistent calls to include the ICT artefact in IS research (Orlikowski and Iacona, 2001) for a number of reasons. Using the term ICT artefact is confusing in IS philosophy, teaching and research (Alter, 2015:55) because these concepts are fundamentally prior to and not about ICT. Although these disciplines may use ICT as part of the process i.e. the students used computers, the internet and electronic information sources to research the topic, methods and philosophy of IS; the research did not primarily investigate the use of ICT for research or teaching. Likewise, I used ICT such as Facebook, WhatsApp, YouTube and institutional E-Learning systems during the administration and execution of the pedagogy, yet the research was primarily not about the use of such technology. Even looking at this research as a socio-technical contribution is misleading (Alter, 2015:55). One may argue that IS students are more "tech-savvy" and are thus better able to utilise the internet and research tools

in order to conduct research, but this is merely suppositional. The artefact of an education system is educated students or graduates. Inputs are students, lecturers, administrators, financial and information resources, infrastructure and so forth.

> "This view emanates from the ontological assumptions of information systems work as meaningful and purposeful human/social activities. In this science not only objects like methods, models and information systems are studied. People are studied and scientific knowledge is created about people in regard to their roles as information system users and developers" (Goldkuhl, 1981:21)

Representing an IS curriculum or IS graduates as an ICT artefact is thus misleading as it blurs the boundaries between people and processes and technology (Goldkuhl, 2013:91).

> "Much valuable research that is relevant to information systems focuses on technical artefacts whose meaning is realised through contributions to other technical artefacts that end users will never see" (Alter, 2015:53).

A contribution to IS from such a perspective is thus not a new *technology* but a new *technique* of teaching. If one thus wants to refer to the contribution to the field of IS of this thesis as an artefact, then the best that I can offer is representing it as a new *technique* that is disseminated to other scholars by means of this thesis and concomitant publications. This view remains consistent with considering an Information System as an "open system" comprising of people, process, technologies and context (Chatterjee et al., 2017) as opposed to the narrow view of the ICT artefact in the discipline of IS (Orlikowski and Iacona, 2001). Considering the importance that research has in the field of IS, and the paucity of research in the IS curriculum specifically at South African universities, this exemplar makes a significant contribution towards understanding the introduction of research competencies in the IS curriculum. This does not, however, limit this contribution to the IS curriculum, as a few of the other departments at SAU adopted a similar approach (by following my example) in fields such as Finance, Economics and Industrial Psychology.

X.4.v Practical contributions

Conceptualising an epistemology of praxis for teaching research in IS has provided an exemplary case study of teaching research in the Undergraduate Curriculum. The value of such research lies mainly in the growth and development of the educator and

students that participated in this process. There is, however, a general practical process for teaching research at undergraduate level that can be suggested for practice. Following are some suggestions on how curriculum interventions can be targeted in a research-based (RBL) curriculum.

Year 1

At a first-year level, the curriculum mostly specifies an introduction to the subject i.e. "Introduction to IS" (Topi et al., 2010). The emphasis would thus be to strengthen students' understanding of the core constructs of the discipline through structured coursework and prescribed reading and/or study materials on one or more aspects of "Introduction to IS". In a research curriculum, students are given a seed article or topic on a particular aspect of the course and assigned in groups to research the topic and present it to their peers. An example of such a research project is outlined in a paper that I presented with my supervisor in 2012 (Uys and Chigona, 2015). The topic can, of course, be varied year-on-year to remain fresh and interesting to the students and to keep up to date with recent developments in the IS field.

Year 2

Year 2 typically incorporates greater depth and emphasis on the process of how knowledge is acquired in the field or discipline. In IS this involves greater emphasis on systems analysis and design, architecture and further systems and database development (Topi et al., 2010). The emphasis thus needs to shift from the process of acquiring knowledge, to the process of producing knowledge. In SA there is a dire lack of competency in academic literacies, and most students are second or third language English speakers (Holtman and Mukwada, 2014). The emphasis would thus be on the introduction of research and writing skills as well as basic research methodologies.

Year 3

At a third-year level in IS, students are also expected to go beyond the mere analysis of literature and are expected to contribute in terms of a new system design or development. At a third-year level, it is expected that students are familiar with the foundational aspects of the discipline as well as the process of new knowledge acquisition. At this stage students are required to apply their knowledge in a particular area as well as critically engage with the latest research on the. The emphasis would not only be on the documentation of the research or design process, but in-depth

research on the theories and practices of IS. It is at this level that the curriculum that was developed in this dissertation is targeted.

Post- graduate

At a postgraduate level, researchers should be able to (although not necessarily are) independently research a topic of their choice or allocated by their research supervisor. As not all students envisage a career as an academic/researcher, it is at this stage that specialisation should be allowed in terms of doing a postgraduate degree in the development of an IS/IT product or advancing their research competencies in terms of a research dissertation. At this level it would also be appropriate to introduce methods and techniques of engaging with the field through research publication and writing workshops.

X.4.vi Research limitations

This research has some practical and conceptual limitations that may influence its applicability to other situations. Firstly, praxis research is contextually bound as it considers the actual circumstances. As was indicated, generalisation is not the aim of phronetic research, but contextual explanations of the circumstances and the actions that took place. Some of the key limitations are that this research is only based on the actions and reflections of myself and the students during the course. This does not include the role of management, administration and the institutional office in their roles and influences. Although such contextual aspects are important for a critical science such as phronēsis (Chishtie, 2012; Flyvberg, Landman and Schram, 2012b), the scope of this research did not include an examination of the political and social structures influencing the teaching context.

This research is based on the experiences of three cohorts of students on one course (IFS352) over a period of three years. Naturally each cohort of students would be different, so there is no specific continuity over the three years. This does not accord the study's longitudinal status in terms of the students or cases which are single case or snapshots. Yet in terms of the overall process and my role in it as educator, as well as the progression of my teaching skills over the period highlights both the change in my actions as well as how students respond to this. In this way a longitudinal consideration is retained. Also, as life is constantly changing, repeatability is also not at stake here. Any attempt from a positivist perspective to control extraneous variables in a teaching situation such as this is doomed to fail. The case also represents the

personal experiences and thoughts of the students and myself, and thus represents 'embodied cognition' (Bourdieu, 1998; Bourdieu and Wacquant, 1992b), so it never clearly or fully reflects these thoughts and experiences. At best it should be considered an acceptable representation. Lastly, the events and activities as well as the reflections that they triggered are not predictable or even manageable. Any attempt to replicate such practices in another practice is also unlikely.

In this case there was no control group of students to allow for differences between this teaching approach and the traditional approach. Ethically, students were offered the option of conducting individual research as opposed to group research. In year one, the first group of students volunteered to be part of the group research. In year 2, 24 out of the 70 students chose to do individual research. They were grouped as Case 1 (Individual Researchers). No specific comparison was done between the individual students and the group students except for what was reported in Table VII.8 Comparison of Individual and Group work. Even though my preferred approach was for the entire class to research one topic that was subdivided into activities, there is still much research to be done on groupwork and group research assignments in IS and particularly in terms of self-directed learning groups (Mentz and Goosen, 2007; Morrow, Rothwell and Wright, 2012; Zhang et al., 2016). This kind of research reiterates the ethical nature of teaching (Strike, 1988; Strike and Soltis, 1992), and may bring into question decisions that are made in the curriculum that may negatively or positively affect the student's learning. If one knows a better way of teaching students to do research (i.e. such as in this case), would it be ethical not to teach them in this way.

X.4.vii Further research

One of the main challenges that I experienced with conceptualising an epistemology of praxis for the teaching of research, is the institutionalisation of such a curriculum due mainly in terms of the expectations of students to be taught in a way that they have become accustomed to, and in teaching faculty to teach in ways that they have been taught. A further area of concern is the stark line of disciplinary boundaries or 'ivory towers' that need to be spanned by a research curriculum.

Further research should firstly consider how HEI's can transition from teaching-based learning to research based learning (Ruddin, 2006). This is particularly relevant in the tendency at HEI's in SA to separate administrative structures of teaching and

research, together with their separate budgets and objectives. In this way, this research stands as an exemplar of what is possible at an institution that is in transition from a teaching to a research institute. An approach that can be adjusted to suit different institutions, faculties and degrees. The predominant emphasis on PBO strategies should also be researched further and determined how these may constrain a research-based curriculum. Further research is also required as to the value of an 'unstructured' curriculum in fostering the self-directing capabilities of students.

Secondly, it should be considered how research-based learning can be incorporated into professional educator development and secondarily how such development can be facilitated in praxis. Because most educators at HEI are self-taught, it may make sense to incorporate such practices in induction courses or CPD courses, with the outcomes evaluated through reflective journals and/or portfolios of practice.

Thirdly, this type of research opens the doors to inter-disciplinary courses, where research stands at the centre of the curriculum. Finland (Garner, 2015; Mark, 2017) has already embarked on a process of placing problem-based and research-based learning at the centre of their curriculum. These practices have also been advanced through problem-based learning with the use of ICT's at HEI's in Denmark (Bygholm and Buus, 2009; Dirckinck-holmfeld, 2009), as well as in the creation of interdisciplinary curriculum and praxis projects (Bacon et al., 2011).

Lastly, student expectations, assessment strategies, and evaluations need to be considered in the implementation of such research-based epistemologies. Further research is required in how existing student assessment and evaluations can be adopted to encourage student-led learning through research and praxis.

A phronetic approach to education requires educators to explore their educational actions in context. This requires them to engage critically with *what* they teach, *how* they teach, *where* they teach and so forth. Further research is necessary to determine how Aristotle's ontology as uncovered in this dissertation can inform educational practices, particularly in the realm of curriculum planning (Schubert, 1986:15), question-based learning (Harb, Durrant and Terry, 1993; McCarthy and McCarthy, 2006) and reflective practices in HEI (Carr and Kemmis, 1986; Kemmis, 2009).

Further research is also required in terms of how a revival of Aristotle's system of practical reasoning (phronesis) in terms of evaluation of circumstances, categorisation of choices, dialectical reasoning, topics and rhetoric can inform practices such as phronetic social science and casuistry (Jonsen, 1995; Jonsen and Toulmin, 1988) that are based on these concepts.

Lastly, further research is required on the implications of the correct attribution of Aristotle's elements of circumstances (by Sloan, 2010) and their central role in practical reasoning on any or all of the practices that have been based on these elements as outlined in *V.4.iii Elements of circumstances in practice (p.* 153-157).

X.5 Concluding statement

Standing at the end of this process of learning as represented in this dissertation, I am able to make sense of my original problem of academics that have not been taught how to teach and students not being taught how to learn. In the light of understanding obtained through this research I wish to present my revised understanding of the problem.

I set out to research how one develops as a teacher and a scholar. In order to do that, I needed to learn how to be critically reflective and how to teach students to be critically reflective for themselves. For this to occur, I needed to delve both into the praxis of reflection as well as the philosophies, theories and practices of teaching and learning.

The reason I embarked on this process was two-fold. Firstly, I was doing my PhD on developing a critical epistemology for research in IS, but was confronted with a challenge as a first-time lecturer of being faced with a blank wall of faces in the classroom i.e. I did not know how to teach or how students learn. My question at the time to Prof. Ngwenyama was: How do I get responses from my students? As part of the ensuing discussion, we realised that they needed to become self-directed and learn to think for themselves in order to develop their own voices. As a result of this process, more than 210 students went through a process of discovering their 'academic voices'. This gave them a platform to stand on, on which to proclaim their own first-hand new-found knowledge. Unlike their previous 'book' learning this was real-world experience-based learning. In the process, the students' reflections allowed me to

microscopically examine the way they perceive things, think about them, prepare for action, the experiences that they had, and how they finally made sense of it all.

This knowledge cycle is represented in many theories of action ranging from how we think, reflective practice, and Deming cycle, to Action Learning as outlined in the previous chapter. In the process, I uncovered a framework for critical reflection that is widely used in terms of 'How' we learn (Gardner, 1983), 'How' we teach (Revans, 1982b), 'How' we reflect (Mezirow, 1998; Race, 2002), 'How' we write about events (5Ws and H), and 'How' we plan (Carr and Kemmis, 1986). More importantly, I discovered the origin of these elements in the writings of Aristotle on moral conduct, human reasoning (analytics), argumentation (dialectics), rhetoric, politics and education. These are expressed as sets of mnemonics or cognitive framework of the *elements of circumstances* on which to hang one's stream of intermittent or random thoughts (Dewey, 1910). Again, much has been written about these primordial treatises in philosophical literature.

Many other treatises on these works have resulted from these elements, including those of Cicero (Robertson Jr., 1946), St Thomas Aquinas (Leff, 1983), and the line of reasoning continuing with the casuists (Jonsen and Toulmin, 1988) till modern times. Yet the outcomes of such inquiries were organised into coherent treatises of diverse topics and subjects which eventually became the material with which students over ages were educated. It also did not help that some of the important works of Aristotle which were lost for a long period of time and were only recovered in the 1600s. This further strengthened academia's stronghold on Plato's writings and Plato's forms, leading to strong critiques against the very thesis of human reasoning that Aristotle had established during his time.

These principles from Aristotle's works would affect many diverse disciplines such as Law, Medicine, Religion, Science, Mathematics, Language and so forth. Yet the very division of our educational system into discrete subjects has suppressed their foundations of logic, reasoning, emotion, dialogue that they have been built on. The final removal of the trivium in liberal education during the middle ages was the last death-knell to a universal system of education. There appears to be a groundswell in academia to return to some of these roots, both of phronēsis and of a broad liberal education. A bold move by the Finnish government to remove all subject-led inquiry

from its senior curriculum in favour of a Topic-led systems attests to that (Garner, 2015; Mark, 2017).

> "It would be beneficial to try to recover the spirit in which Aristotle first delineated the concept of special *topics* for which it can show us about the relationship between rhetorical teaching, theory and practice" (Miller, 1987:61).

I argue here that a return to the three Rs of reading, wRiting and aRithmetic is insufficient to sustain an educational system that is based on moral reasoning. To this we need to add three more Rs to the curriculum, namely Reasoning, Reflection and Rhetoric. And not Reasoning, Reflection and Rhetoric as an academic practice, but as a practical way for students to make sense of the world around them. It is vital that we respond to Newman's clarion call that our Universities return to their roots and become institutes of reason, and not Institutes of duplication and replication.

Maybe it was appropriate during the Middle Ages, prior to the advent of the printing press, for scholars to learn how to duplicate and memorise large volumes of texts. Now that we have the photocopier, the internet and copy and paste in Word, this is no longer a valuable skill or a scarce resource. Unfortunately, many bright young children are brought up on a diet of copy-paste internet assignments, and very few teachers or academics are trained in teaching them how to write or how to evaluate such writings. This means that students in SA are graduating from schools without being able to write while having passed English as a subject (Bharuthram, 2012).

With the advent of the internet, there is very little information that cannot be accessed by students and scholars alike (albeit with the assistance of very expensive journal and database subscriptions). The incessant focus on course outcomes, course guides, lesson plans, class-room teaching materials, presentations and textbooks in a technical curriculum has provided a menu for children and students alike that has minimal nutritional value. The effect of this is an academic system placing the responsibilities on teachers and academics to make sense of their subjects, thus taking these competencies away from our students. It also means that students struggle to coherently assemble a body of knowledge and present this in a logical, coherent form.

I would suggest that it is time to move the responsibility of inquiry from the educator to the students themselves. Educators already know how to conduct research in their subjects/disciplines, write an essay or a review on it, conduct empirical

research, put together a coherent set of slides and present it to a body of peers. These are the very foundation of post-graduate degrees in most disciplines, except maybe for practical disciplines such as music, accounting or medicine, as a research-based Master's degree is a minimum degree required to teach at universities in SA. The important thing for academics to transition to a research-based curriculum is to learn how to teach research.

As Aristotle said, only those who know 'Why' can teach. This means that academics roles and appointments may need to change from being subject specialists to being specialists in teaching and learning through researching their own practices. This also means that academics need to be able to teach students how to conduct research on any topic or subject that is either an actuality concern or in the students' interest and not necessarily on any specific topic or discipline. All that is required to convert lecturers into research educators is for them to learn how to teach research, which is something that they can learn in praxis such as I have argued in this dissertation. This approach would allow students to inquire into any subject or topic that may be necessary for their development as practitioners, through using tools and techniques that are applicable to many practical fields or disciplines. This stands in contrast to the belief that we need to teach students the basics in a particular discipline…a belief that has severely constrained learning in higher education. Questions such as what such a curriculum would look like can only be answered in praxis.

And now I have a class…so my last words to finish this line of thought.

Contrary to popular view, I believe that students in a course should not be trained to think alike or to know the same things. This revised approach would allow both students and academics to gain a belief in their own abilities (self-efficacy) and not to be dependent on others for instruction and guidance. This would give them the freedom to form their own opinions, beliefs and theories of the world around them, rather than to imitate those of scholars preceding them. This will provide students with a platform to follow any line of inquiry and to become specialists - in and of themselves, thereby extending Socrates' dictum 'Know thyself' to a dictum of, 'Know for thyself'.

I thank you!

"For everyone ceases to inquire how he is to act when he has brought the moving principle back to himself and to the ruling part of himself; for this is what chooses" (Aristotle EN, 1113a5-7).

Chapter XI References

Aber, J. 2010. The Technical, the Practical, and the Emancipatory: A Habermasian View of Composition Pedagogy. *Journal of Teaching Writing* 10 (2): 123–36.

Abowd, G., A. Dey, P. Brown, N. Davies, M. Smith and P. Steggles. 1999. Towards a Better Understanding of Context and Context-Awareness. In *Handheld and Ubiquitous Computing*, 304–15.

Abrahams, A.S. and T. Singh. 2013. Expeditionary Learning in Information Systems: Definition, Implementation, and Assessment. *Decision Sciences Journal of Innovative Education* 11 (1): 47–75.

Aditomo, A., P. Goodyear, A.-M. Bliuc and R.A. Ellis. 2013. Inquiry-Based Learning in Higher Education: Principal Forms , Educational Objectives , and Disciplinary Variations. *Studies in Higher Education* 38 (9): 1239–58.

Al-Zahrani, A.M. 2015. From Passive to Active: The Impact of the Flipped Classroom through Social Learning Platforms on Higher Education Students' Creative Thinking. *British Journal of Educational Technology* 46 (6): 1133–48.

Allman, P. 1981. Adult Development. In *Towards a Developmental Theory of Andragogy*, edited by P. Allman and K.J. Mackie, 3–15. Nottingham: The Nottingham Andragogy Group.

Alter, S. 2015. The Concept of "IT Artifact" Has Outlived Its Usefulness and Should Be Retired Now. *Information Systems Journal* 25 (1): 47–60.

Alter, S. 2017. Nothing Is More Practical than a Good Conceptual Artifact... Which May Be a Theory, Framework, Model, Metaphor, Paradigm or Perhaps Some Other Abstraction. *Information Systems Journal* 27 (5): 671–93.

Amundsen, C., C. Weston and L. McAlpine. 2008. Concept Mapping to Support University Academics' Analysis of Course Content. *Studies in Higher Education* 33 (6): 633–52.

Anagnostopoulos, G. 2009. Aristotle's Method. In *A Companion to Aristotle*, edited by Georgios Anagnostopoulos, 101–22. Oxford: Blackwell Publishing Ltd.

Anderson, E.M. and A.L. Shannon. 1988. Toward a Conceptualization of Mentoring. *Journal of Teacher Education* 39 (1): 38–42.

Angier, T. 2010. *Techné in Aristotle's Ethics: Crafting the Moral Life*. London: Continuum International Publishing Group.

Anton, J.P. 1992. On the Meaning of Kategoria in Aristotle's Categories. In *Essays in Ancient Greek Philosophy: Volume V. Aristotle's Ontology*, edited by Anthony Preus and John P. Anton, Volume V, 1–20.

Apigian, C.H. and S.E. Gambill. 2009. Are We Teaching the IS 2009 Model Curriculum? *Journal of Information Systems Education* 21 (4): 411–21.

Argyris, C. 1976. Theories of Action That Inhibit Individual Learning. *American Psychologist* 31 (9): 638–54.

Argyris, C. 1995. Action Science and Organizational Learning. *Journal of Managerial Psychology* 10 (6): 20–26.

Argyris, C. and D.A. Schön. 1974. *Theory in Practice: Increasing Professional Effectiveness*. San Francisco, CA: Jossey-Bass Inc.

Argyris, C. and D.A. Schön. 1996. *Organizational Learning II: Theory, Method and Practice*. Reading, Massachusetts: Addison Wesley.

Aristotle. n.d. Analytica Posteriora. In *The Works of Aristotle*, edited by W.D. Ross, translated by G.R.G. Mure, 1928th ed. Vol. Vol I. Oxford: Clarendon Press.

Aristotle. n.d. Categories. Edited by W D Ross. Translated by E.M. M Edghill. *The Works of Aristotle* I. Oxford: Clarendon Press.

Aristotle. n.d. Ethica Nichomachea. In *The Works of Aristotle*, edited and translated by W.D. Ross, 1920th ed. Vol. IX. Oxford: Clarendon Press.

Aristotle. n.d. Eudemian Ethics. In *The Works of Aristotle*, edited by W D Ross, translated by J Solomon, 1915th ed. Vol. IX. Oxford: Clarendon Press.

Aristotle. n.d. Magna Moralia. In *The Works of Aristotle*, edited by W D Ross, translated by G Stock, 1915th ed. Vol. IX. Oxford: Clarendon Press.

Aristotle. n.d. Metaphysics. In *The Works of Aristotle*, edited by W.D. Ross, translated by W D Ross, 1928th ed. Vol. VIII. Oxford: Clarendon Press.

Aristotle. n.d. On Sophistical Refutations. In *The Works of Aristotle*, edited by W D Ross, translated by A W Pickard-Cambridge, 1928th ed. Vol. I. Oxford: Clarendon Press.

Aristotle. n.d. On the Soul. In *The Works of Aristotle*, edited and translated by J.A. Smith, 1931st ed. Vol. III. Oxford: Clarendon Press.

Aristotle. n.d. Politics. In *The Works of Aristotle*, edited by W D Ross, translated by Benjamin Jowett, 1921st ed. Vol. X. Oxford: Clarendon Press.

Aristotle. n.d. Posterior Analytics. In *The Works of Aristotle*, edited by W D Ross, translated by G.R.G. R G Mure, 1928th ed. Vol. Vol I. Oxford: Clarendon Press.

Aristotle. n.d. Prior Analytics. In *The Works of Aristotle*, edited by W D Ross, translated by A J Jenkinson, 1928th ed. Vol. I. Oxford: Clarendon Press.

Aristotle. n.d. Rhetoric. In *The Works of Aristotle*, edited by W.D. Ross, translated by W.R. Roberts, 1920th ed. Vol. XI. Oxford: Clarendon Press.

Aristotle. n.d. Rhetoric to Alexander. In *The Works of Aristotle*, edited by W.D. Ross, translated by E.S. Forster, 1920th ed. Vol. XI. Oxford: Clarendon Press.

Aristotle. n.d. Topics. In *The Works of Aristotle*, edited by W D Ross, translated by A W Pickard-Cambridge, 1928th ed. Vol. I. Oxford: Clarendon Press.

Armstrong, M., J. Ketz and D. Owsen. 2003. Ethics Education in Accounting: Moving toward Ethical Motivation and Ethical Behavior. *Journal of Accounting Education* 21: 1–16.

Aronson, L. 2011. Twelve Tips for Teaching Reflection at All Levels of Medical Education. *Medical Teacher* 33 (3): 200–205.

Arras, J.D. 1991. Getting down to Cases: The Revival of Casuistry in Bioethics. *The Journal of Medicine and Philosophy* 16 (1): 29–51.

Asgharpour, A. 1961. *Durkheim's Moral Education*. Edited by EK Wilson. New York: The Free Press.

Ash, M.G. 2006. Bachelor of What, Master of Whom? The Humboldt Myth and Historical Transformations of Higher Education in German-Speaking Europe and the US. *European Journal of Education* 41 (2): 245–67.

Aydede, M. 1998. Aristotle on Episteme and Nous: The Posterior Analytics. *Southern Journal of Philosophy* 36 (1): 15–46.

Backman, J. 2010. The End of Action: An Arendtian Critique of Aristotle's Concept of Praxis. In *Hannah Arendt: Practice, Thought and Judgement: Studies across*

Disciplines in the Humanities and Social Sciences, edited by Mika Ojakangas, 20:28–47. Helsinki: Helsinki Collegium for Advanced Studies.

Bacon, C.M., D. Mulvaney, T.B. Ball, E.M. DuPuis, S.R. Gliessman, R.D. Lipschutz and A. Shakouri. 2011. The Creation of an Integrated Sustainability Curriculum and Student Praxis Projects. *International Journal of Sustainability in Higher Education* 12 (2): 193–208.

Baldwin, G. 2005. The Teaching-Research Nexus. *CSHE, University of Melbourne.[Online] Available.* http://www.cshe.unimelb.edu.au/resources_teach/curriculum_design/docs/TR_Nexus2005.pdf.

Bandara, W., W. Fernandez and B. Rowlands. 2012. Qualitative Methods in IS Research. *Australasian Journal of Information Systems* 17 (2).

Bandura, A. 1969. Social-Learning Theory of Identificatory Processes. *Handbook of Socialization Theory and Research*.

Bandura, A. 2001. Social Cognitive Theory: An Agentic Perspective. *Annual Review of Psychology* 52 (January): 1–26.

Bangeni, B. and R. Kapp. 2007. Shifting Language Attitudes in Linguistically Diverse Learning Environment in South Africa. *Journal of Multilingual and Multicultural Development* 28 (4): 253–69.

Banville, C. and M. Landry. 1989. Can the Field of MIS Be Disciplined? *Communciations of the ACM* 32 (1): 48–60.

Barker, L. 2009. Student and Faculty Perceptions of Undergraduate Research Experiences in Computing. *Transactions on Computing Education* 9 (1): 1–28.

Barnett, R. 1997. *Higher Education: A Critical Business*. *International Journal of Educational Management*. Buckingham, UK.: Open University Press.

Barnhurst, K. and D. Mutz. 1997. American Journalism and the Decline in Event-centered Reporting. *Journal of Communication* 47 (4): 27–53.

Barrie, S.C.S. 2007. A Conceptual Framework for the Teaching and Learning of Generic Graduate Attributes. *Studies in Higher Education* 32 (4): 439–58.

Batista, E. and A. Corney. 2012. Experiential Learning Cycles. Accessed June 14.

http://www.edbatista.com/2007/10/experiential.html.

Beard, R. 1970. *Teaching and Learning in Higher Education*. Middlesex, UK.: Penguin Books Ltd.

Beaudoin, B. 2012. Creating Community: From Individual Reflection to SoTL Transformation. *International Journal for the Scholarship of Teaching and Learning* 6 (1): 1–10.

Beck, C.R.C. 2001. Matching Teaching Strategies to Learning Style Preferences. *The Teacher Educator* 37 (1): 1–15.

Becker, H.S. 1992. Cases, Causes, Conjunctures, Stories, Imagery. In *What Is a Case?*, edited by C.C. Ragin and H.S. Becker, 205–16. Cambridge, UK: Cambridge University Press.

Becker, K. 2005. Individual and Organisational Unlearning: Directions for Future Research. *International Journal of Organisational Behaviour* 9 (7): 659–70.

Behr, A.L. 1980. *Teaching and Learning at University*. Durban, ZA: Butterworth & Co.

Bellah, E.R.N., R.N. Bellah, S.M. Tipton, W.M. Sullivan, R. Madsen, A. Swidler and S.M. Tipton. 2007. *Habits of the Heart: Individualism and Commitment in American Life*. Univ of California Press.

Benbasat, I. and R.W. Zmud. 2003. The Identity Crisis Within the IS Discipline: Defining and Communicating the Discipline's Core Properties. *MIS Quarterly* 27 (2): 183–94.

Benjamin S. Bloom, ed. 1956. *Taxonomy of Educational Objectives. Book 1: Cognitive Domain*. New York: Addison-Wesley Longman Ltd.

Bentley, K., A. Habib and S. Morrow. 2006. Academic Freedom, Institutional Autonomy and the Corporatised University in Contemporary South Africa. *CHE*. http://www.che.ac.za/media_and_publications/research/academic-freedom-institutional-autonomy-and-corporatised-university.

Berlowitz, M.J. 1976. Pedagogy of Oppression in the University; Trends Toward the "Fascisization" of the Academy. *The Insurgent Socialist* VI (4): 15–26.

Berthiaume, D. 2009. Teaching in the Disciplines. In *A Handbook for Teaching and*

Learning in Higher Education, edited by Heather Fry, Steve Ketteridge, and Stephanie Marshall, 3rd ed., 215–25. Abingdon, Oxon.

Bertolino, A. 2007. Software Testing Research: Achievements , Challenges , Dreams. In *Future of Software Engineering*, 85–103. Minneapolis, MN, USA.

Bharuthram, S. 2012. Making a Case for the Teaching of Reading across the Curriculum in Higher Education. *South African Journal of Education* 32 (2): 205–14.

Biggs, J. 2003. Aligning Teaching for Constructing Learning. *The Higher Education Academy*: 13–16.

Biggs, J. 2011. Teaching for Quality Learning at University: Assessing for Learning Quality. In *Teaching for Quality Learning at University*, edited by J Biggs and C Tang. New York, NY: Open University Press.

Biggs, J. 2014. Constructive Alignment in University Teaching. *HERDSA Review of Higher Education* 1: 5–22.

Biggs, J. and C. Tang. 2011. *Teaching For Quality Learning At University*. 4th ed. New York: Open University Press.

Bloom, L., L. Hood and P. Lightbown. 1974. Imitation in Language Development: If, When, and Why. *Cognitive Psychology* 6 (3): 380–420.

Boeyink, D.E. 1992. Casuistry: A Case-Based Method for Journalists. *Journal of Mass Media Ethics* 7 (2): 107–20.

Boje, D.M. 2002. Beyond Pentad to Hexad: Dancing Partners and Burke's Sixth Step. http://business.nmsu.edu/~dboje/qm/addons/beyond_pentad_to_hexad.htm.

Bok, D. and E.B. McKeithan. 2005. Critical Thinking: Lighting the Path to Lifelong Learning. *Assessment*. http://cfcc.edu/SACS/QEP/.

Booth, W.C.W.C., G.G.G.G. Colomb, J.M. William, T. Craft, W.C.W.C. Booth, G.G.G.G. Colomb and J.M. Williams. 2008. *The Craft of Research*. 2nd Editio. Chicago: The University of Chicago Press.

Borko, H., P. Michalec, M. Timmons and J. Siddle. 1997. Student Teaching Portfolios: A Tool for Promoting Reflective Practice. *Journal of Teacher Education* 48 (5): 345–57.

Bos, A. 1989. Exoterikoi Logoi and Enkyklioi Logoi in the Corpus Aristotelicum and the Origin of the Idea of the Enkyklios Paideia. *Journal of the History of Ideas* 50 (2): 179–98.

Boud, D. and D. Walker. 1991. Experience and Learning: Reflection at Work. In *Adults Learning in the Workplace*, 114. Geelong, Victoria: Deakin University.

Bourdieu, P. 1998. Practical Reason. *Mind* 74 (294): 174–91.

Bourdieu, P. and L.J.D. Wacquant. 1992a. *An Invitation to Reflexive Sociology*. Cambridge, UK: Polity Press.

Bourdieu, P. and L.J.D. Wacquant. 1992b. The Practice of Reflexive Sociology. *An Invitation to Reflexive Sociology*. Chicago: University of Chicago Press.

Bozalek, V. 2010. UWC Teaching and Learning Plan 2010-2014. http://www.uwc.ac.za/TandL/Pages/Director's-Message.aspx#.VG8YuMkXImM.

Branson, R. 2007. *Screw It, Let's Do It: Lessons in Life and Business*. Croydon: Random House.

Breunig, M. 2005. Turning Experiential Education and Critical Pedagogy Theory into Praxis. *Journal of Experiential Education* 28 (2): 106–22.

Brew, A. 1999. Research and Teaching: Changing Relationships in a Changing Context. *Studies in Higher Education* 24 (3): 291–301.

Brew, A. 2003. Teaching and Research: New Relationships and Their Implications for Inquiry-Based Teaching and Learning in Higher Education. *Higher Education Research and Development* 22 (1): 3–18.

Brew, A. 2010. Research-Based Learning Decision-Making Wheel.

Brew, A. and D. Boud. 1995. Teaching and Research : Establishing the Vital Link with Learning. *Higher Education* 29 (3): 261–73.

Bridgstock, R. 2009. The Graduate Attributes We've Overlooked: Enhancing Graduate Employability through Career Management Skills. *Higher Education Research and Development* 28 (1): 31–44.

Brockett, R.G. and R. Hiemstra. 1991. A Conceptual Framework for Understanding Self-Direction in Adult Learning. In *Self-Direction in Adult Learning:*

Perspectives on Theory, Research, and Practice. London, U.K.: Routledge.

Brookfield, S.D. 1983. *Adult Learning, Adult Education and the Community*. Milton Keynes: Open University Press.

Brookfield, S.D. 1998. Critically Reflective Practice. *Journal of Continuing Education in the Health Professions* 18 (4): 197–205.

Brown, G. and Madeleine Atkins. 1993. *Effective Teaching in Higher Education*. London, UK.: Routledge.

Brown, J.S., A. Collins and P. Duguid. 1989. Situated Cognition and the Culture of Learning. Edited by Masoud Yazdan and Robert Walt Lawler. *Educational Researcher* 18 (1). American Educational Research Association: 32–42.

Brown, J.S., A. Collins and S. Newman. 1989. Cognitive Apprenticeship: Teaching the Crafts of Reading, Writing, and Mathematics. *Knowing, Learning, and ….*

Brownhill, B. 2002. The Socratic Method. In *Theory and Practice of Teaching*, edited by Peter Jarvis, 70–78. London, UK.: Kogan Page Limited.

Brumbaugh, R. and N. Laurence. 1959. Aristotle's Philosophy of Education. *Educational Theory* 9 (1): 1–15.

Burke, K. 1945. *A Grammar of Motives*. Berkeley: University of California Press.

Burman, M.E. and A. Kleinsasser. 2004. Ethical Guidelines for Use of Student Work: Moving From Teaching's Invisibility To Inquiry's Visibility in the Scholarship of Teaching and Learning. *The Journal of General Education* 53 (1): 59–79.

Butterfield, L.D., W.A. Borgen, N.E. Amundson and A.-S.T. Maglio. 2004. Fifty Years of the Critical Incident Technique: 1954-2004 and Beyond. *Qualitative Research* 5 (4): 475–97.

Bygholm, A. and L. Buus. 2009. Managing the Gap between Curriculum Based and Problem-Based Learning: Deployment of Multiple Learning Strategies in Design and Delivery of Online Courses in Computer Science. *International Journal of Education and Development Using Information and Communication Technology* 5 (1): 13–22.

Bytheway, A., M. Bladergroen and W. Chigona. 2012. Managing Information Technology in Education: Planning or Improvisation?

Ccnr.Infotech.Monash.Edu: 1–17.

Campbell, E. 2004. Ethical Bases of Moral Agency in Teaching. *Teachers and Teaching: Theory and Practice* 10 (4): 409–28.

Caravello, P.S. 2008. The Literature on Academic Integrity and Graduate Students: Issues, Solutions, and the Case for a Librarian Role. *Public Services Quarterly* 3 (3–4): 141–71.

Carder, L., P. Willingham and D. Bibb. 2001. Information Literacy for the Real World. *Research Strategies* 18 (3): 181–90.

Carnell, E. 2007. Conceptions of Effective Teaching in Higher Education: Extending the Boundaries. *Teaching in Higher Education* 12 (1): 25–40.

Carr, D. 2011. Values, Virtues and Professional Development in Education and Teaching. *International Journal of Educational Research* 50 (3). Elsevier Ltd: 171–76.

Carr, N. 2008. Is Google Making Us Stupid? *Atlantic Magazine*. https://www.theatlantic.com/magazine/archive/2008/07/is-google-making-us-stupid/306868/.

Carr, W. 1987. What Is an Educational Practice? *Journal of Philosophy of Education* 21 (1): 163–75.

Carr, W. 1989. Action Research : Ten Years On. *Journal of Curriculum Studies* 21 (1): 85–90.

Carr, W. 1995. *For Education: Towards Critical Educational Inquiry*. Buckingham: Open University Press.

Carr, W. 2004. Philosophy and Education. *Journal of Philosophy of Education* 38 (1): 55–73.

Carr, W. 2005. The Role of Theory in the Professional Development of an Educational Theorist. *Pedagogy, Culture and Society* 13 (3): 333–46.

Carr, W. 2006. Education Without Theory. *British Journal of Educational Studies* 54 (2): 136–59.

Carr, W. 2007. Educational Research as a Practical Science. *International Journal of Research and Method in Education* 30: 271–86.

Carr, W. and S. Kemmis. 1986. *Becoming Critical: Education Knowledge and Action Research*. London: RoutledgeFarmer.

Cattafi, R. and C. Metzner. 2007. A Didactic Experience in Collaborative Learning Supported by Digital Media. *Issues in Informing Science and Information Technology* 4.

Cecez-Kecmanovic, D. 2011. On Methods, Methodologies and How They Matter. In *European Conference on Information Systems*, 233. Helsinki.

Chan, H.C., V. Guness and H.-W. Kim. 2014. A Method for Identifying Journals in a Discipline: An Application to Information Systems. *Information & Management*, December. Elsevier B.V.: 1–9.

Chatterjee, S., X. Xiao, A. Elbanna and S. Sarker. 2017. The Information Systems Artifact : A Conceptualization Based on General Systems Theory. *Proceedings of the 50th Hawaii International Conference on Systems Sciences*: 5717–26.

Chaudhary, A. 2013. Theories of Teaching. *Research in Education* 2 (3): 81–84.

CHE. 2017. What Is Accreditation and Why Should Programmes Be Accredited? *Center for Higher Education (South Africa)*. http://www.che.ac.za/content/what-accreditation-and-why-should-programmes-be-accredited.

Cherry, M. 1997. South Africa Increases Central Control of Higher Education. *Nature* 390: 9.

Chetty, R. and C.B. Knaus. 2016. Why South Africa's Universities Are in the Grip of a Class Struggle. *Sunday Times*: 12–14.

Chishtie, F. 2012. Phronesis and the Practice of Science. In *Phronesis as Professional Knowledge: Practical Wisdom in the Professions*, 101–14. Rotterdam: Sense Publishers.

Christie, P. 1998. Schools as (Dis)Organisations: The `breakdown of the Culture of Learning and Teaching' in South Africa. *Cambridge Journal of Education* 28 (3): 283–301.

Clancey, W.J. 1995. A Tutorial on Situated Learning. *Proceedings of the International Conference on Computers and Education (Taiwan)*: 49–70.

Clarence, S. 2011. Writing in the Academy. In *Changing Spaces: Writing Centres and Access to Higher Education*, 101–14. Stellenbosch: SUN Press.

Clark, D. 2012. What Does the "A" in KSA Really Mean? *ELearning Training*. http://www.nwlink.com/~donclark/hrd/history/KSA.html.

Clark, R.W., M.D. Threeton and J.C. Ewing. 2010. The Potential of Experiential Learning Models and Practices in Career and Technical Education & Career and Technical Teacher Education. *Journal of Career and Technical Education* 25 (2): 46–62.

Cloete, N. 2014. The South African Higher Education System: Performance and Policy. *Studies in Higher Education*. October 2. doi:10.1080/03075079.2014.949533.

Cloete, N. 2016. University Fees in South Africa: A Story from Evidence. *CHET*, no. May.

Cloete, N., J. Mouton and C. Sheppard. 2015. Doctoral Education in South Africa – Policy, Discourse and Data. *Perspectives in Education : The Changing Face of Doctoral Education in South Africa : Special Issue 3*. Cape Town: African Minds. http://repository.up.ac.za/handle/2263/18461.

Clynes, T. 2016. How to Raise a Genius: Lessons from a 45-Year Study of Super-Smart Children. *Nature* 537 (7619): 152–55.

Cohen, A. and C. Kisker. 2010. *The Shaping of American Higher Education: Emergence and Growth of the Contemporary System*. San Francisco, CA: Jossey-Bass.

Collins, A. 2006. Cognitive Apprenticeship. In *The Cambridge Handbook of the Learning Sceinces*, edited by R. Keith Sawyer, 47–60. Cambridge University Press.

Collins, J.C. and J.I. Porras. 1997. *Built to Last: Successful Habits of Visionary Companies*. New York, NY: Harper Business.

Computer Science Curricula 2013: Curriculum Guidelines for Undergraduate Degree Programs in Computer Science. 2013. Los Alamitos, CA: ACM and IEEE.

Constantinides, P., M.W. Chiasson and L.D. Introna. 2017. The Ends of Information Systems Research: A Pragmatic Framework 27 (4): 597–636.

Cooper, J.M. 2013. Aristotelian Responsibility. *Oxford Studies in Ancient Philosophy* 45 (October): 265–312.

Corbin, J. and A. Strauss. 2008. *Basics of Qualitative Research*. 2nd ed. Thousand Oaks, California: Sage Publications.

Cross, K.P. 1981. *Adults as Learners*. San Francisco: Jossey-Bass.

Csikszentmihalyi, M. 1990. *Flow: The Psychology of Optimal Experience*. New York: Harper Perennial.

Csikszentmihalyi, M. 1996. *Creativity: Flow and the Psychology of Discovery and Invention*. New York, NY: Harper Perennial.

Dam, G. Ten and M. Volman. 2004. Critical Thinking as a Citizenship Competence: Teaching Strategies. *Learning and Instruction* 14: 359–79.

David, L. 2015. Humanism. In *Learning Theories*. [Onine].

Davidson, E.J. 2011. "Hey Professor, Why Are You Teaching This Class?" Reflections on the Relevance of IS Research for Undergraduate Students. *European Journal of Information Systems* 20 (2): 133–38.

de Vries, S., E.P.W.A. Jansen, M. Helms-Lorenz and W.J.C.M. van de Grift. 2015. Student Teachers' Participation in Learning Activities and Effective Teaching Behaviours. *European Journal of Teacher Education* 38 (4): 460–83.

Deacon, R. 2004. Michel Foucault on Education: A Preliminary Theoretical Overview. *South African Journal of Education VolBaker & Heyning Blades* 26 (2): 177–87.

Denham, B. 1997. Teaching Research Methods to Undergraduates. *Journalism and Mass Communication Educator* 51 (4): 54–63.

Dewey, J. 1910. *How We Think: The Problem of Training Thought*. Lexington, MA: DC Heath.

Dewey, J. 1933. *How We Think: A Restatement of the Relation of Reflective Thinking to the Educative Process. Book*. Lexington, MA: Heath.

Dewey, J. 1938. *Experience and Education*. New York: Kappa Delta Phi.

Dierking, L. 1991. Learning Theory and Learning Styles: An Overview. *The Journal of Museum Education* 16 (1): 4–6.

Dillenbourg, P. 1999. What Do You Mean by "Collaborative Learning"? In

Collaborative-Learning: Cognitive and Computational Approaches., edited by Pierre Dillenbourg, 1:1–19. Oxford, England: Elsevier.

Dirckinck-holmfeld, L. 2009. Innovation of Problem Based Learning through ICT : Linking Local and Global Experiences. *International Journal of Education and Development Using ICT* 5 (1): 3–12.

Dirkx, J.M. 1998. Transformative Learning Theory in the Practice of Adult Education: An Overview. *PAAACE Journal of Lifelong Learning* 7: 1–14.

Doherty, J., M. Hansen and K. Kaya. 1999. Teaching Information Skills in the Information Age: The Need for Critical Thinking. *Library Philosophy and Practice* 1 (2): 1–9.

Doucet, M.D., R.A. Purdy, D.M. Kaufman and D.B. Langille. 1998. Comparison of Problem-Based Learning and Lecture Format in Continuing Medical Education on Headache Diagnosis and Management. *Medical Education* 32 (6): 590–96.

Downes, S. 2012. *Connectivism and Connective Knowledge: Essays on Meaning and Learning Networks*.

Dreyfuss, S.E. and H.L. Dreyfus. 1980. A Five-Stage Model of the Mental Activities Involved in Directed Skill Acquisition. *Operations Research Center*. Berkeley.

Dubin, R. 1978. *Theory Development*. New York, NY: Free Press.

Dunn, L. 2002. Theories of Learning l.

Dunne, J. 1993. *Back to the Rough Ground: "Phronesis" and "Techne" in Modern Philosophy and in Aristotle*. Notre Dame: University of Notre Dame Press.

Dunne, J. 1999. Virtue, Phronesis and Learning. In *Virtue Ethics and Moral Education*, edited by D. Carr and J. Steutel, 49–63. London: London, Routledge.

Dunne, J. and S. Pendlebury. 2003. Practical Reason. In *The Blackwell Guide to the Philosophy of Education*, edited by N Blake, P Smeyers, RD Smith, and P Standish, 194–211.

Durkheim, E. 1956. *Education and Sociology*. Glencoe: The Free Press.

Durkheim, E. 1961. *Moral Education*. New York: The Free Press.

Dybicz, P. and L. Pyles. 2011. The Dialectic Method: A Critical and Postmodern Alternative to the Scientific Method. *Advances in Social Work* 12 (2): 301–17.

Eagen, W.M., O. Ngwenyama and F. Prescod. 2008. The Design Charrette in the Classroom as a Method for Outcomes-Based Action Learning in IS Design. *Information Systems Education Journal* 6 (19): 1–11.

Education Theory. 2012. *Wikipedia, The Free Encyclopedia*.

Eikeland, O. 2006. Phrónêsis, Aristotle, and Action Research. *International Journal of Action Research* 2 (1): 5–53.

Eikeland, O. 2007. From Epistemology to Gnoseology – Understanding the Knowledge Claims of Action Research. *Management Research News* 30 (5): 344–58.

Eikeland, O. 2012. Action Research - Applied Research, Intervention Research, Collaborative Research, Practitioner Research, or Praxis Research? *International Journal of Action Research* 8 (1): 9–44.

Eisenhardt, K.M. 1989. Building Theories from Case Study Research. Edited by A Michael Huberman and Matthew B Miles. *Academy of Management Review* 14 (4). London: Sage Publications: 532–50.

Eisner, E.W. 1967. Educational Objectives: Help or Hindrance? *School Review* 75 (3): 250–60.

Elsen, M.G.M.F., G.J. Visser-Wijnveen, R.M. van der Rijst and J.H. van Driel. 2009. How to Strengthen the Connection between Research and Teaching in Undergraduate University Education. *Higher Education Quarterly* 63 (1): 64–85.

Eng, C.S. 2000. *Problem-Based Learning – Educational Tool or Philosophy*. *Learning*. Australia: University of Newcastle.

Entwistle, N.J., M. Hanley and G. Ratcliffe. 1979. Approaches to Learning and Levels of Understanding. *British Educational Research Journal* 5 (February): 99–114.

Epstein, L. 1981. Teaching Research-Based Practice : Rationale and Method. *Journal of Education for Social Work* 17 (2): 51–55.

Eraut, M. 1995. Schön Shock: A Case for Refraining Reflection-in-Action? *Teachers and Teaching: Theory and Practice* 1 (1): 9–22.

Ericsson, K.A., R.T. Krampe and C. Tesch-Römer. 1993. The Role of Deliberate Practice in the Acquisition of Expert Performance. *Psychological Review* 100 (3):

363–406.

Ericsson, K.A., M.J. Prietula and E.T. Cokely. 2007. The Making of an Expert. *Harvard Business Review* Jul-Aug: 1–7.

Ertmer, P.A. and T.J. Newby. 1993. Behaviorism, Cognitivism, Constructivism: Comparing Critical Features From an Instructional Design Perspective. *Performance Improvement Quarterly* 6 (4): 50–72.

Fahraeus, A.W.E. 2013. Learner-Centered Teaching: Five Key Changes to Practice. *Journal of the Scholarship of Teaching and Learning* 13 (4): 1–6.

Farnsworth, V., I. Kleanthous and E. Wenger-Trayner. 2016. Communities of Practice as a Social Theory of Learning: A Conversation with Etienne Wenger. *British Journal of Educational Studies* 64 (2). Routledge: 139–60.

Faure, M. 2013. Understanding Aristotle's Prudence and Its Resurgence in Postmodern Times. *Phronimon* 14 (2): 45–84.

FeesMustFall. n.d. Anon. *Wikipedia, The Free Encyclopedia*. https://en.wikipedia.org/w/index.php?title=FeesMustFall&oldid=753825670.

FIN Research. 2010. http://www.uta.fi/FAST/FIN/RESEARCH/sources.html.

Finnigan, B. 2006. The Dialectical Method in Aristotle's Nicomachean Ethics. *Phronimon* 7 (2): 1–15.

Fino, N. 2013. Depleting the Curriculum: Teaching Digital Platforms and Curricular Impoverishment. In *Proceedings of the European Conference on Curriculum Studies-Future Directions: Uncertainty and Possibility.*, 1–6.

Fitzmaurice, M. 2008. Voices from within: Teaching in Higher Education as a Moral Practice. *Teaching in Higher Education* 13 (3): 341–52.

Five W's. 2012. *Wikipedia, the Free Encyclopedia*. Accessed November 14. http://en.wikipedia.org/wiki/Circumstances_(rhetoric).

Flyvberg, B. 2001. *Making Social Science Matter: Why Social Inquiry Fails and How It Can Succeed Again*. Translated by Steven Sampson. Cambridge, UK: Cambridge University Press.

Flyvberg, B. 2002. Bringing Power to Planning Research: One Researcher's Praxis Story. *Journal of Planning Education and Research* 21 (4): 353–66.

Flyvberg, B. 2004. Phronetic Planning Research: Theoretical and Methodological Reflections. *Planning Theory and Practice* 5 (3): 283–306.

Flyvberg, B. 2005. Social Science That Matters. *Foresight Europe*.

Flyvberg, B. 2006. Making Organization Research Matter: Power, Values and Phronesis. In *The Sage Handbook of Organization Studies*.

Flyvberg, B., T. Landman and S. Schram. 2012a. Important next Steps in Phronetic Social Sceince. In *Real Social Sceince: Applied Phronesis*, 285–97. Cambridge: Cambridge University Press.

Flyvberg, B., T. Landman and S. Schram. 2012b. *Real Social Science: Applied Phronesis*. Edited by Bent Flyvbjerg, Todd Landman, and Sanford Schram. Cambridge: Cambridge University Press.

Foo, S.Y. and R.M.R. Hussain. 2010. Self-Directed Learning in a Socioconstructivist Learning Environment. *Procedia - Social and Behavioral Sciences* 9: 1913–17.

Frankl, V. 1985. *Man's Search for Meaning*. New York, NY: Simon and Schuster.

Franklin, S.S. 1994. An Empirical Examination of Aristotle's Concept of Virtue and Its Relationship to Well-Being. In *Meeting of the Western Psychological Association*, 1–18. Los Angeles.

Freire, P. 1970a. *Pedagogy of the Oppressed*. New York: Continuum.

Freire, P. 1970b. The Adult Literacy Process as Cultural Action for Freedom. *Harvard Educational Review* 40 (2): 205–25.

Freire, P. 1973. *Education for Critical Consciousness*. London, U.K.: Continuum.

Freire, P. 1985. *The Politics of Education: Culture, Power, and Liberation*. Westport: Bergin and Garvey.

Freire, P. 1994. Pedagogy of Hope: Reliving Pedagogy of the Oppressed, Trans. *Robert R. Barr (New York: Continuum, 1994)*.

Freire, P. 1998. *Pedagogy of Freedom: Ethics, Democracy, and Civic Courage*.

Freire, P. 2005. The Banking Concept of Education. In *Educational Foundations: An Anthology of Critical Readings*, 255–67. New York: St. Martini Press.

Freire, P. and A. Faundez. 1989. *Learning to Question: A Pedagogy of Liberation*. New York, NY: Continuum Publishers.

Gadotti, M. 1996. *Pedagogy of Praxis: A Dialectical Philosophy of Education*. Albany: SUNY Press.

Gage, N.L. and D.C. Berliner. 1992. *Educational Psychology*. 5th ed. Boston, MA: Houghton Mifflin.

Gagne, R., L. Briggs and W.W. Wager. 1988. *Principles of Instructional Design*. 3rd ed. New York: Holt, Rinehart & Winston, Inc.

Gagne, R.M., W.W. Wager, K.C. Golas and J.M. Keller. 2005. *Principles of Instructional Design*. 5th ed. Oxford, England: Holt, Rinehart & Winston, Inc.

Gagnon, J.H. and W. Simon. 2005. *Sexual Conduct: The Social Sources of Human Sexuality*. London, U.K.: Aldine Transaction.

Galliers, R.D. 2003. Change as Crisis or Growth? Toward a Trans-Disciplinary View of Information Systems as a Field of Study: A Response to Benbasat and Zmud' s Call for Returning to the IT Artifact. *Journal of the Association for Information Systems* 4 (6): 337–51.

Gandomkar, R. and J. Sandars. 2018. Clearing the Confusion about Self-Directed Learning and Self-Regulated Learning. *Medical Teacher*. Informa UK Ltd.: 1–2.

Gardner, H. 1983. *Frames of Mind: The Theory of Multiple Intelligences*. New York: Basic Books.

Garner, R. 2015. Finland Schools: Subjects Scrapped and Replaced with "topics" as Country Reforms Its Education System. *Independant*. http://www.independent.co.uk/news/world/europe/finland-schools-subjects-are-out-and-topics-are-in-as-country-reforms-its-education-system-10123911.html.

Garratt, B. 2011. The Power of Action Learning. In *Action Learning in Practice*, 21–34. Gower Publishing Limited.

Garrison, D.R. 1997. Self-Directed Learning: Toward a Comprehensive Model. *Adult Education Quarterly* 48 (1): 18–33.

Genor, M. 2005. A Social Reconstructionist Framework for Reflection: The "Problematizing" of Teaching. *Issues in Teacher Education* 14 (2): 45–62.

Genus–differentia Definition. 2014. *Wikipedia, The Free Encyclopedia*. Accessed July

10. https://en.wikipedia.org/w/index.php?title=Genus–differentia_definition&oldid=741429522.

Gibbs, G. n.d. *Learning by Doing: A Guide to Teaching and Learning Methods*. Oxford: Oxford Further Education Unit.

Gibbs, G. 2010. *Dimensions of Quality*. *The Higher Education Academy*. York, U.K.: The Higher Education Academy.

Gibbs, G. and M. Coffey. 2004. The Impact Of Training Of University Teachers on Their Teaching Skills, Their Approach to Teaching and the Approach to Learning of Their Students. *Active Learning in Higher Education* 5 (1): 87–100.

Gijbels, D., F. Dochy, P. Van den Bossche and M. Segers. 2005. Effects of Problem-Based Learning: A Meta-Analysis From the Angle of Assessment. *Review of Educational Research* 75 (1): 27–61.

Gilboy, M.B., S. Heinerichs and G. Pazzaglia. 2015. Enhancing Student Engagement Using the Flipped Classroom. *Journal of Nutrition Education and Behaviour* 47 (1). Elsevier Inc.: 109–14.

Gill, G. and A. Bhattacherjee. 2009. Whom Are We Informing? Issues and Recommendations for MIS Research From an Informing Sciences Perspective. *MIS Quarterly* 33 (2): 217–35.

Gilpin, L. and D. Liston. 2009. Transformative Education in the Scholarship of Teaching and Learning: An Analysis of SoTL Literature. *International Journal for the Scholarship of Teaching and Learning* 3 (2): 1–8.

Giroux, H. 1988. *Teachers as Intellectuals: Toward a Critical Pedagogy of Learning*. Westport: Bergin and Garvey.

Giroux, H. 2010. Lessons to Be Learned from Paulo Freire as Education Is Being Taken over by the Mega Rich. *Truthout/OP-ED*.

Gladwell, M. 2008. *Outliers: The Story of Success*. New York, NY: Little, Brown and Company.

Glaze, J. 2002. Ph.D. Study and the Use of a Reflective Diary: A Dialogue with Self. *Reflective Practice* 3 (2): 153–66.

Glenn, P. 2015. 5 Reasons The Future of Education Is Project Based: And Why We'll

Abandon 200 Years of Rote Education Faster than You Think. https://medium.com/project-based-learning/5-reasons-the-future-of-education-is-project-based-d3287f940a9f.

Goffman, E. 1963. *Behaviour in Public Places: Notes on the Social Order of Gatherings*. New York: Free Press.

Gokhale, A.A. 1995. Collaborative Learning Enhances Critical Thinking. *Journal of Technology Education* 7 (1): 1–4.

Goldkuhl, G. 1981. On Foundations for Information Systems Science - A Tentative Paradigm Analysis. SYSLAB WP.

Goldkuhl, G. 2013. The IT Artefact: An Ensemble of the Social and the Technical? – A Rejoinder. *Systems, Signs & Actions* 7 (1): 90–99.

Goode, S., R. a Willis, J.R. Wolf and A.L. Harris. 2007. Enhancing IS Education with Flexible Teaching and Learning. *Journal of Information Systems Education* 18 (3): 297–302.

Gorgone, J.T., G.B. Davis, J.S. Valacich, H. Topi, D.L. Feinstein, J. Herbert E. Longenecker, J.T. Gorgone, J.D. Couger, D.L. Feinstein and H.E. Longenecker. 2002. IS 2002: Model Curriculum and Guidelines for Undergraduate Degree Programs in Information Systems. *Association for Information Systems (AIS)*. New York, NY and Park Ridge, IL.

Government Changes Minimum Entry Requirements for a Bachelor's Degree in South Africa. 2018. *BusinessTech*. Accessed December 21. https://businesstech.co.za/news/government/288442/government-changes-minimum-entry-requirements-for-a-bachelors-degree-in-south-africa/.

Grabinger, R. and J. Dunlap. 1995. Rich Environments for Active Learning: A Definition. *ALT-J*.

Grant, D. and O.K. Ngwenyama. 2003. A Report on the Use of Action Research to Evaluate a Manufacturing Information Systems Development Methodology in a Company. *Information Systems Journal* 13 (1): 21–35.

Grapragasem, S., A. Krishnan, P.L. Joshi, S. Krishnan and A. Azlin. 2015. Lecturers' Perception of Classroom Management: An Empirical Study of Higher Learning Institutions in Malaysia. *International Journal of Higher Education* 4 (4): 137–

46.

Gravells, A. and S. Simpson. 2014. Delivering Education and Training. In *The Certificate in Education and Training*, 87–147. London, UK: Learning Matters.

Gregor, S. 2006. The Nature of Theory in Information Systems. *MIS Quarterly* 30 (3): 611–42.

Gregory, J. 2002. Facilitation and Facilitator Style. In *Theory and Practice of Teaching*, edited by Peter Jarvis, 79–93. London, UK.: Kogan Page Limited.

Griffin, C. 2002. Didactism: Lectures and Lecturing. In *Theory and Practice of Teaching*, edited by Peter Jarvis, 55–69. London, UK.: Kogan Page Limited.

Grote, G. 1872. Topica. In *Aristotle in Two Volumes*, edited by Alexander Bain and G Croom Robertson, Vol I:378–476. London, UK: John Murray.

Grow, G.O. 1991. Teaching Learners to Be Self-Directed. *Adult Education Quarterly* 41 (3): 125–49.

Grundy, S. 1987. *Curriculum: Product or Praxis?* Philadelphia, PA.: The Falmer Press.

Gustafson, K.L. and R.M. Branch. 1997. *Survey of Instructional Development Models*. Washington, DC.: ERIC.

Gustafson, K.L. and R.M. Branch. 2002. What Is Instructional Design. In *Trends and Issues in Instructional Design and Technology*, 16–25.

Gutek, G. 1997. Philosophical and Ideological Perspectives on Education.

Guthrie, C. 2000. Towards Greater Learner Control: Web Supported Project-Based Learning. *Business* 21 (1): 121–31.

Guy, A. 1991. The Role of Aristotle's Praxis Today. *The Journal of Value Inquiry* 25: 287–89.

Habermas, J. 1972. *Knowledge and Human Interest*. London: Heinemann Educational Books Ltd.

Habermas, J. 1974. *Theory and Practice*. Translated by John Viertel. Heinemann Educational Books Ltd.

Habermas, J. 1983. *Moral Consciousness and Communicative Action*. Edited by Christian Lenhardt and Shierry Weber Nicholsen. Thomas McCarthy.

Habermas, J. 1984. *The Theory of Communicative Action: Reason and the Rationalization of Society: Volume 1*. Vol. 2. Boston: Beacon Press.

Hadwin, A., S. Järvelä and M. Miller. 2011. Self-Regulated, Co-Regulated, and Socially Shared Regulation of Learning.

Hagevik, R., M. Aydeniz and C.G. Rowell. 2012. Using Action Research in Middle Level Teacher Education to Evaluate and Deepen Reflective Practice. *Teaching and Teacher Education*, March. Elsevier Ltd: 1–10.

Halverson, R. 2004. Accessing, Documenting, and Communicating Practical Wisdom: The Phronesis of School Leadership Practice. *American Journal of Education* 111 (1): 90–121.

Halvorsen, T. and A. Nyhagen, eds. 2011. *Academic Identities—Academic Challenges? American and European Experience of the Transformation of Higher Education and Research*. Newcastle upon Tyne, UK: Cambridge Scholars Publishing.

Hammond, J. and P. Gibbons. 2005. What Is Scaffolding? In *Teachers' Voices 8: Explicitly Supporting Reading and Writing in the Classroom*, 8–17.

Harb, J., S. Durrant and R. Terry. 1993. Use of the Kolb Learning Cycle and the 4MAT System in Engineering Education. *Journal of Engineering Education* 82 (2): 70–77.

Hartree, A. 1984. Malcolm Knowles' Theory of Andragogy: A Critique. *International Journal of Lifelong Education* 3 (3): 203–10.

Haskins, E. V. 2000. "Mimesis" between Poetics and Rhetoric: Performance Culture and Civic Education in Plato, Isocrates, and Aristotle. *Rhetoric Society Quarterly* 30 (3): 7–33.

Hassan, N.R. 2010. A Re-Examination of Banville and Landry's "Can the Field of MIS Be Disciplined?" In *ICIS*, 1–11. St. Louis: Association for Information Systems Electronic library (AISeL).

Hatch, J.A. 2002. *Doing Qualitative Research in Education Settings*. New York, NY: SUNY Press.

Heath, H. 1998. Keeping a Reflective Practice Diary: A Practical Guide. *Nurse Education Today* 18 (7): 592–98.

Heinze, A. and C.C.C. Procter. 2004. Reflections On The Use Of Blended Learning. *Proceedings of ECE*. http://usir.salford.ac.uk/1658.

Helfand, D. 2011. Higher Education: Academic Questions. *Nature* 477 (7363): 158–59.

Hendricks, C.C. 2001. Teaching Causal Reasoning through Cognitive Apprenticeship: What Are Results from Situated Learning? *The Journal of Educational Research* 94 (5): 302–11.

HEQC. 2001. Higher Education Quality Committee (HEQC) Founding Document. http://www.che.ac.za/media_and_publications/heqc/higher-education-quality-committee-heqc-founding-document.

Herman, H.D. 1995. School-Leaving Examinations, Selection and Equity in Higher Education in South Africa. *Comparative Education* 31 (2): 261–74.

Heron, J. 2001. *Helping the Client: A Creative Practical Guide*. 5th ed. London, UK.: SAGE Publications Ltd.

Herr, K. and G.L. Anderson. 2005. *The Action Research Dissertation: A Guide for Students and Faculty*. Thousand Oaks, California: Sage Publications.

Herrick, J. (Ed). 2005. WikiHow. https://www.wikihow.com/.

Herrick, M.J. 1997. The Implementation of Reflective Practice for Improving University Teaching. *South African Journal of Higher Education* 11 (1): 180–85.

Hiemstra, R. 1994. Self-Directed Learning. *The International Encyclopedia of Education*. Pergamon Press.

Hill, N. 2011. *Think and Grow Rich*. UK: Hachette.

Hirst, P.H. 1968. The Logic of the Curriculum. *Journal of Curriculum Studies* 1 (2): 142–58.

Hirst, P.H. 1973. The Nature and Scope of Educational Theory. In *New Essays in the Philosophy of Education*, 66–75.

Hirst, P.H. and W. Carr. 2005. Philosophy And Education-A Symposium. *Journal of Philosophy of Education* 39 (4): 615–32.

Hirst, P.H. and R.S. Peters. 1970. *The Logic of Education*. London: Routledge.

Hmelo-silver, C.E. 2004. Problem-Based Learning : What and How Do Students

Learn ? *Educational Psychology Review* 16 (3): 235–66.

Hofer, B.K. and P.R. Pintrich. 1997. The Development of Epistemological Theories: Beliefs About Knowledge and Knowing and Their Relation to Learning. *Review of Educational Research* 67 (1): 88–140.

Holmes, G. and M. Abington-Cooper. 2000. Pedagogy vs. Andragogy: A False Dichotomy? *Journal of Technology Studies* 26 (2): 2–7.

Holt, J. 1972. *Freedom and Beyond*. 1st ed. New York, NY: Dutton.

Holtman, L. and G. Mukwada. 2014. Challenges Confronting the Quality of Postgraduate Research Supervision and Its Effects on Time-to-Degree and Throughput Rates: A Case of a South African University. *Mediterranean Journal of Social Sciences* 5 (6): 179–90.

Holton, G. and Y. Elkana. 1997. *Albert Einstein: Historical and Cultural Perspectives*. Princeton, N.J.: Dover Publications.

Holz, H., A. Applin and W. Joel. 2007. Status Report of the SIGCSE Committee on Teaching Computer Science Research Methods. In *SIGCSE Technical Symposium on Computer Science Education*, 327–28.

Holz, H.J., A. Applin, D. Joyce, H. Purchase, C. Reed and B. Haberman. 2006. Research Methods in Computing: What Are They, and How Should We Teach Them? In *ITiCSE*, 96–114.

How to Write a Summary. 2012. Accessed May 20. http://www.enotes.com/topics/how-write-summary.

Howard, R. and L. Davies. 2009. Plagiarism in the Internet Age. *Educational Leadership* 66 (6): 64–67.

Howerton, C.P. 1991. Conducting Effective Research at a Teaching-Oriented Institution with Undergraduate Students. *Consortium for Computing in Small Colleges*: 99–108.

Huang, H.-H. and J.S. Hsu. 2005. An Evaluation of Publication Productivity in Information Systems: 1999 to 2003. *Communications of the Association for Information Systems* 15: 555–64.

Huitt, W. 2009. Humanism and Open Education. *Educational Psychology*

Interactive. Valdosta, GA: Valdosta State University. http://www.edpsycinteractive.org/topics/affect/humed.html.

Hunter, A.P. 1977. The Role of Expatriate Staff in the Third World University. In *The Future of the University in South Africa*, edited by H.W. van der Merwe and D. Welsh. David Phillip.

Hurst, E. 2014. "The Thing That Kill Us": Student Perspectives on Language Support in a South African University. *Teaching in Higher Education*: 1–14.

Husu, J. and K. Tirri. 2003. A Case Study Approach to Study One Teacher's Moral Reflection. *Teaching and Teacher Education* 19 (3): 345–57.

Hutchings, C. 2006. Reaching Students: Lessons from a Writing Centre. *Higher Education Research and Development* 25 (3): 247–61.

Illich, I. 1971. *Deschooling Society*. *New York*. New York, NY: Harper & Row, Publishers.

Imel, S. 1998. Teaching Critical Reflection. Trends and Issues Alerts. *Education*.

Iversen, J.H., L. Mathiassen and P.A. Nielsen. 2004. Managing Risk in Software Process Improvement: An Action Research Approach. *MIS Quarterly* 28 (3): 395–433.

Jansen, J. 2017. Decolonising the University Curriculum given a Dysfunctional School System ? *Journal of Education* 1 (68): 3–13.

Jansen, J.D. 2004. Changes and Continuities in South Africa's Higher Education System, 1994 to 2004. In *Changing Class: Changes and Continuities in Higher Education*, edited by Linda Chisholm, 293–314.

Jansen, J.D. and V. Reddy. 1994. Curriculum Analysis a Reference Manual. *Improving Educational Quality (IEQ) Project*: 20.

Jarvis, P. 2002a. Teaching Styles and Teaching Methods. In *The Theory and Practice of Teaching*, edited by Peter Jarvis, 22–30. London, UK.: Kogan Page Limited.

Jarvis, P. 2002b. *The Theory and Practice of Teaching*. New York, NY: Routledge.

Jawitz, J. 2013. The Challenge of Teaching Large Classes in Higher Education in South Africa. *SUN Media*: 137–46.

Jehenson, R. 1984. Effectiveness , Expertise and Excellence as Ideological Fictions: A

Contribution to a Critical Phenomenology of the Formal Organization. *Human Studies* 7 (1): 3–21.

Jenkins, A., M. Healy and R. Zetter. 2007. Linking Teaching and Research in Disciplines and Departments. *The Higher Education Academy*, no. April: 1–94.

Jonassen, D.H. 1991. Objectivism vs. Constructivism: Do We Need a New Philosophical Paradigm? *Educational Technology: Research and Development* 39 (3): 5–14.

Jonsen, A.R. 1991. Casuistry as Methodology in Clinical Ethics. *Theoretical Medicine* 12 (4): 295–307.

Jonsen, A.R. 1995. Casuistry: An Alternative or Complement to Principles? *Kennedy Institute of Ethics Journal* 5 (3): 237–51.

Jonsen, A.R. and S. Toulmin. 1988. *The Abuse of Casuistry: A History of Moral Reasoning*. Berkeley, CA.: University of California Press.

K.Smith, M. and M.K. Smith. 1999. What Constitutes Reflection - and What Significance Does It Have for Educators? The Contributions of Dewey, Schön and Boud et. Al. Assessed. http://www.infed.org/biblio/b-reflect.htm.

Kabita, D.N. and L. Ji. 2017. The Why , What and How of Competency-Based Curriculum Reforms: The Kenyan Experience. In *Current and Critical Issues in Curriculum, Learning and Assessment To*, edited by Mmantsetsa Marope. UNESCO International Bureau of Education.

Kamler, B. and P. Thomson. 2014. *Helping Doctoral Students Write: Pedagogies for Supervision*. New York, NY: Routledge.

Kane, G.C. and R.G. Fichman. 2009. The Shoemaker's Children: Using Wiki's for Information Systems Teaching, Research, and Publication. *MIS Quarterly* 33 (1): 1–17.

Kant, I. 1798. The Conflict of the Faculties. In , translated by Translated by Mary J. Gregor. New York: Abaris.

Kant, I. 1934. *Critique of Pure Reason*. Translated by Norman Kemp Smith. London: Macmillan.

Kant, I. 1988. *Fundamental Principles of the Metaphysic of Morals*. *Great Books in*

Philosophy.

Kapp, K. 2014. Gamification: Separating Fact from Fiction. *Chief Learning Officer*, no. March: 42–46.

Karlesky, M. and M. Vander Voord. 2008. Agile Project Management (or, Burning Your Gantt Charts). In *Embedded Systems Conference Boston*, 1–16. Boston, Massachusetts.

Keegan, A. and J.R. Turner. 2001. Quantity versus Quality in Project-Based Learning Practices. *Management Learning* 32 (1): 77–98.

Kember, D. and L.Y.N. Gow. 1992. Action Research as a Form of Staff Development in Higher Education. *Higher Education* 23: 297–310.

Kember, D., A. Jones, A. Loke, J. Mckay, K. Sinclair, H. Tse, C. Webb, F. Wong, M. Wong and E. Yeung. 1999. Determining the Level of Reflective Thinking from Students ' Written Journals Using a Coding Scheme Based on the Work of Mezirow. *International Journal of Lifelong Education* 18 (1): 18–30.

Kember, D. and D.Y.P. Leung. 1998. Influences upon Students' Perceptions of Workload. *Educational Psychology* 18 (3): 293–307.

Kember, D., J. Mckay, K. Sinclair and F.K.Y. Wong. 2008. A Four-Category Scheme for Coding and Assessing the Level of Reflection in Written Work. *Assessment and Evaluation in Higher Education* 33 (4). Routledge: 369–79.

Kemmis, S. 2009. Action Research as a Practice-Based Practice. *Educational Action Research* 17 (3): 463–74.

Kemmis, S. 2010. Research for Praxis: Knowing Doing. *Pedagogy, Culture and Society* 18 (1): 9–27.

Kemmis, S. 2012. Researching Educational Praxis: Spectator and Participant Perspectives. *British Educational Research Journal* 38 (6): 885–905.

Kemmis, S. and R. McTaggart. 1988. *The Action Research Reader*. Burwood, Melbourne: Deakin University.

Kim, J.S. 2005. The Effects of a Constructivist Teaching Approach on Student Academic Achievement , Self-Concept , and Learning Strategies. *Asia Pacific Education Review* 6 (1): 7–19.

King, A. 1993. From Sage on the Stage to Guide on the Side. *College Teaching* 41 (1): 30–35.

King, T. n.d. Development of Student Skills in Reflective Writing.

Kirk, S.A. and M.S. Kolevzon. 1978. Teaching Research Methodology from Z to A. *Journal of Education for Social Work* 14 (1): 66–72.

Kirschner, P.A., J. Sweller and R.E. Clark. 2006. Why Minimal Guidance During Instruction Does Not Work: An Analysis of the Failure of Constructivist, Discovery, Problem-Based, Experiential, and Inquiry-Based Teaching. *Educational Psychologist* 41 (2): 75–86.

Kitchenham, A. 2008. The Evolution of John Mezirow's Transformative Learning Theory. *Journal of Transformative Education* 6 (2): 104–23.

Kitchenham, A. and C. Chasteauneuf. 2010. An Application of Mezirow's Critical Reflection Theory to Electronic Portfolios. *Journal of Transformative Education* 7 (3): 230–44.

Kizito, R.N. 2016. Connectivism in Learning Activity Design: Implications for Pedagogically-Based Technology Adoption in African Higher Education Contexts. *International Review of Research in Open and Distributed Learning* 17 (2).

Klein, H.K. and F. Rowe. 2008. Marshaling the Professional Experience of Doctoral Students: A Contribution To the Practical Relevance Debate. *Mis Quarterly* 32 (4): 675–86.

Knowles, M., E. Holton and R. Swanson. 2015. New Perspectives on Andragogy. In *The Adult Learner: The Definitive Classic in Adult Education and Human Resource Development*, 8th ed., 387. Abingdon, Oxon: Routledge.

Knowles, M.S. 1975. *Self-Directed Learning. A Guide for Learners and Teachers*. Chicago, IL: Follett Publishing Company.

Kolb, A.Y. and D.A. Kolb. 2005. Learning Styles and Learning Spaces: Enhancing Experiential Learning in Higher Education. *Academy of Management Learning and Education* 4 (2): 193–212.

Kolb, D.A. 1984. *Experiential Learning: Experience as the Source of Learning and Development*. London, UK: Prentice Hall.

Koole, S., T. Dornan, L. Aper, A. Scherpbier, M. Valcke, J. Cohen-Schotanus and A. Derese. 2012. Does Reflection Have an Effect upon Case-Solving Abilities of Undergraduate Medical Students? *BMC Medical Education*.

Kop, R. and A. Hill. 2008. Connectivism: Learning Theory of the Future or Vestige of the Past ? 9 (3).

Krabbe, E.C.W. 2013. Topical Roots of Formal Dialectic. *Argumentation* 27 (1): 71–87.

Kristjánsson, K. 2005. Smoothing It: Some Aristotelian Misgivings about the Phronesis-Praxis Perspective on Education. *Educational Philosophy and Theory* 37 (4): 455–73.

Kroeze, J.H., P.D. Pretorius and J.D. Roode. 2010. The Role of an ICT Research Professor in South Africa. *Sprouts Working Papers on Information Systems* 10 (32): 1–7.

Kugel, P. 1993. How Professors Develop as Teachers. *Studies in Higher Education* 18 (3): 315–28.

Kuhn, T. 1970. *The Structure of Sceintific Revolutions*. Chicago: The University of Chicago Press.

L-D. 2017. Learner's Dictionary. *Merriam Webster (Online)*. Britannica Company. http://www.learnersdictionary.com/.

Lafever, M. and H. Samra. 2014. Student Responses to Persuasion: Motivations for Engaging In Research Outside the Sciences at a Teaching- Intensive University. In *The Clute Institute International Academic Conference*, 46–50. San Antonio, Texas.

Laird, D. 1985. *Approaches to Training and Development*. Reading, Mass.: Addison-Wesley.

Lather, P. 1986. Research as Praxis. *Harvard Educational Review* 56 (3): 257–78.

Lathrop, A. and K. Foss. 2000. *Student Cheating and Plagiarism in the Internet Era: A Wake-up Call*. Englewood, CO: Libraries Unlimited.

Lattuca, L. and J. Stark. 2011. *Shaping the College Curriculum: Academic Plans in Context*. San Francisco, CA: Jossey-Bass.

Laurillard, D. 2006. E-Learning in Higher Education. *Changing Higher Education: The Development of Learning and Teaching*, no. June: 71–84.

Lave, J. 1988. *Cognition in Practice: Mind, Mathematics, and Culture in Everyday Life*. *Cambridge University Press*. Vol. 2. Cambridge University Press.

Lave, J. and E. Wenger. 1991. *Situated Learning: Legitimate Peripheral Participation*. Edited by Roy Pea and John Seely Brown. *Learning in Doing*. Vol. 95. Cambridge, UK: Cambridge University Press.

Lawrie, G. a., K.E. Matthews and L.R. Gahan. 2010. Forming Groups to Foster Collaborative Learning in Large Enrolment Courses. *Proceedings of The Australian Conference on Science and Mathematics Education (Formerly UniServe Science Conference)* 16: 66–71.

le Grange, L. 2016. Decolonising the University Curriculum. *South African Journal of Higher Education* 30 (2): 1–12.

Lear, J. 1988. *Aristotle: The Desire to Understand*. Cambridge: Cambridge University Press.

Lebeničnik, M., I. Pitt and A.I. Starčič. 2015. Use of Online Learning Resources in the Development of Learning Environments at the Intersection of Formal and Informal Learning: The Student as Autonomous Designer . *Center for Educational Policy Studies Journal* 5 (2): 95–113.

Leckie, G.J. and A. Fullerton. 1999. Information Literacy in Science and Engineering Undergraduate Education: Faculty Attitudes and Pedagogical Practices. *College & Research Libraries* 60 (1): 9–29.

Leff, M.C. 1983. The Topics of Argumentative Invention in Latin Rhetorical Theory from Cicero to Boethius. *Rhetorica: A Journal of the History of Rhetoric* 1 (1): 23–44.

Leibowitz, B., V. Bozalek, J. Garraway, N. Herman, J. Jawitz, P. Muhuro, C. Ndebele, et al. 2017. *Learning to Teach in Higher Education in South Africa*. *Higher Education Monitor*. Pretoria: CHE.

Leibowitz, B., V. Bozalek, S. van Schalkwyk and C. Winberg. 2015. Institutional Context Matters: The Professional Development of Academics as Teachers in South African Higher Education. *Higher Education* 69 (2): 315–30.

Letseka, M. and S. Maile. 2008. High University Drop-out Rates : A Threat to South Africa's Future. *The Human Sciences Research Council (HSRC)*, no. March.

Levin, B.B. 1995. Using the Case Method in Teacher Education: The Role of Discussion and Experience in Teachers' Thinking about Cases. *Teaching and Teacher Education* 11: 63–79.

Levy, Y. and T.J. Ellis. 2006. A Systems Approach to Conduct an Effective Literature Review in Support of Information Systems Research. *Informing Science Journal* 9: 181–212.

Lewin, K. 1946. Action Research and Minority Problems. Edited by G W Lewin. *Journal of Social Issues* 2 (4). Wiley Online Library: 34–46.

Lewis, T.E. 2012. *The Aesthetics of Education: Theatre, Curiosity, and Politics in the Work of Jacques Ranciere and Paulo Freire*. New York: Continuum Publishers.

Licht, M. 2014. Controlled Chaos: Project-Based Learning. *The Education Digest* 128 (October): 49–52.

Linder, K.E. 2017. Fundamentals of Hybrid Teaching and Learning. *New Directions for Teaching and Learning* 2017 (149): 11–18.

Lippitt, R. and R.K. White. 1962. *An Experimental Study of Leadership and Group Life*. Chicago, IL: University of Chicago Press.

Livingstone, K.A.. 2015. Teaching Faculty's Perception about Implementing Elearning Practices at the University of Guyana. *International Journal of Education and Development Using Information and Communication Technology* 11 (2): 85–103.

Lloyd, A.S. 1972. Freire, Conscientization, and Adult Education. *Adult Education Quarterly* 23 (1): 3–20.

Lombardi, M.M. 2007. Authentic Learning for the 21st Century: An Overview. Edited by Diana G. Oblinger. Educause.

Lotz, H.B. 1996. The Development of Environmental Education Resource Materials for Junior Primary Education through Teacher Participation: The Case of the We Care Primary Project. University of Stellenbosch, South Africa.

Loughran, J.J. 2007. *A History and Context of Self-Study of Teaching and Teacher*

Education Practices. Edited by J. John Loughran, Mary Lynn Hamilton, Vicki Kubler LaBoskey, and Tom Russell. *International Handbook of Self-Study of Teaching and Teacher Education Practices*. Vol. 12. Springer International Handbooks of Education.

Lovat, T. and D. Smith. 1991. *Curriculum: Action on Reflection*. Riverwood, NSW: Social Sceince Press.

Lynch, K. 2009. Designing IS Curriculum to Meet Industry Requirements. In *Association for Information Systems Electronic Library (AISeL)*, 562–70. Melbourne.

M-W. 2017. *Merriam-Webster Dictionary (Online)*. Accessed June 1. https://www.merriam-webster.com/.

Maheshwaree, P. 2009. *Determinants of Smartphone Usage*. University of Helsinki.

Manathunga, C., P. Lant and G. Mellick. 2007. Developing Professional Researchers: Research Students' Graduate Attributes. *Studies in Continuing Education* 29 (1): 19–36.

Manouselis, N., H. Drachsler, R. Vuorikari, H. Hummel and R. Koper. 2011. Recommender Systems in Technology Enhanced Learning. *Recommender Systems Handbook*: 387–415.

Mark. 2017. Finland To Become First Country In The World To Scrap All School Subjects. https://www.elitereaders.com/finland-to-scrap-all-school-subjects/.

Marsick, V.J. and T.E. Maltbia. 2006. Where's the Reflection in Action Learning? In *A Symposium Presented at the 2006 Annual Meeting of the Academy of Management*, edited by Joe Raelin and Victoria Marsick, 1–83.

Marton, F. and R. Säljö. 2005. Approaches to Learning. In *The Experience of Learning: Implications for Teaching and Studying in Higher Education.*, 39–58.

Marvell, A., D. Simm, R. Schaaf and R. Harper. 2013. Students as Scholars: Evaluating Student-Led Learning and Teaching during Fieldwork. *Joumal of Geography in Higher Education* 37 (4): 547–66.

Mathiassen, L. and A. Sandberg. 2012. How a Professionally Qualified Doctoral Student Bridged the Practice-Research Gap: A Confessional Account of Collaborative Practice Research. *European Journal of Information Systems*, no.

January 2011 (July). Nature Publishing Group: 1–18.

Mattes, B.S. 2008. Education Action Research in Higher Education as Faculty Professional Development. The Pennsylvania State University.

Mattsson, M. and S. Kemmis. 2007. Praxis-Related Research: Serving Two Masters? *Pedagogy, Culture and Society* 15: 185–214.

Maybin, J., N. Mercer and B. Stierer. 1992. "Scaffolding" Learning in the Classroom. In *Thinking Voices: The Work of the National Oracy Project.*, edited by Kate Norman, 186–95. London, U.K.: Hodder Arnold H&S.

Mayo, P. 1999. *Gramsci, Freire and Adult Education. Possibilities for Transformative Action*. London, U.K.: Zed Books.

Mayo, P. 2004. *Liberating Praxis: Paulo Freire's Legacy for Radical Education and Politics*. Rotterdam: Sense Publishers.

McCarthy, B. and D. McCarthy. 2006. *Teaching around the 4MAT® Cycle: Designing Instruction for Diverse Learners with Diverse Learning Styles*. Thousand Oaks, CA: Corwin Press.

McGrath, V. 2009. Reviewing the Evidence on How Adult Students Learn: An Examination of Knowles' Model of Andragogy. *Adult Learner: The Irish Journal of Adult and Community Education*: 99–110.

McGregor, D. 1966. The Human Side of Enterprise. In *Leadership and Motivation, Essays of Douglas McGregor*, edited by W. G. Bennis and E. H. Schein, 3–20. Cambridge, MA.: MIT Press.

McKernan, J. 1996. *Curriculum Action Research: A Handbook of Methods and Resources for the Reflective Practitioner*. London: Kogan Page Limited.

McKernan, J. 2010. A Critique of Instructional Objectives. *Education Inquiry* 1 (1): 57–67.

Mcleod, O. 1995. Aristotle's Method. *History of Philosophy Quarterly* 12 (1): 1–18.

McNall, S.G., ed. 1979. Dialectical Social Science. In *Theoretical Perspectives in Sociology*, 214–31. New York: St. Martin's Press.

McNiff, J. 2002. *Action Research: Principles and Practice*. 3rd ed. Abingdon, Oxon: Routledge.

McTaggart, R. 1991. Principles for Participatory Action Research. *Adult Education Quarterly* 41 (3): 168–87.

Meehan, F.X. 1940. Efficient Causality in Aristotle and St. Thomas. The Catholic University of America.

Mentz, E. and L. Goosen. 2007. Are Groups Working in the Information Technology Class? *South African Journal of Education* 27 (2): 329–43.

Merriam, S. 1982. Some Thoughts on the Relationship between Theory and Practice. In *New Directions for Continuing Education*, edited by Sharan B. Merriam, 87–91. San Francisco, CA: Jossey-Bass.

Merriam, S.B. 2001. Andragogy and Self-Directed Learning: Pillars of Adult Learning Theory. *New Directions for Adult and Continuing Education* 2001 (89): 3–14.

Merriam, S.B., R.S. Caffarella and L.M. Baumgartner. 2007. *Learning in Adulthood: A Comprehensive Guide*. 3rd ed. San Francisco,CA: Jossey-Bass.

Merseth, K.K. 1991. The Early History of Case-Based Instruction: Insights for Teacher Education Today. *Journal of Teacher Education* 42 (4).

Merseth, K.K. 1996. Cases and Case Methods in Teacher Education. In *Handbook of Research on Teacher Education*, 722–44.

Mezirow, J. n.d. Fostering Critical Reflection in Adulthood. *A Guide to Transformative and Emancipatory Learning*.

Mezirow, J. 1981. A Critical Theory of Adult Learning and Education. *Adult Education* 32 (1): 61–82.

Mezirow, J. 1990. How Critical Reflection Triggers Transformative Learning. *Fostering Critical Reflection in Adulthood*. San Francisco: Jossey-Bass: 1–20.

Mezirow, J. 1991. *Transformative Dimensions of Adult Learning*. San Francisco: Jossey-Bass.

Mezirow, J. 1997. Transformative Learning: Theory to Practice. *Fostering Critical Reflection in Adulthood* 48 (3). San Francisco: Jossey-Bass: 214–16.

Mezirow, J. 1998. On Critical Reflection. *Adult Education Quarterly* 48 (3): 185–99.

Middleton, C. and W. Cukier. 2006. Is Mobile Email Functional or Dysfunctional? Two Perspectives on Mobile Email Usage. *European Journal of Information Systems*

15 (3): 252–60.

Mié, F. 2016. Truth, Facts, and Demonstration in Aristotle. Revisiting Dialectical Art and Method. *Humanitas* 71 (1): 97–120.

Mikropoulos, T.A. and A. Natsis. 2011. Educational Virtual Environments: A Ten-Year Review of Empirical Research (1999-2009). *Computers and Education* 56 (3). Elsevier Ltd: 769–80.

Millar, C. 1991. Critical Reflection for Educators of Adults: Getting a Grip on the Scripts for Professional Action. *Studies in Continuing Education* 13 (1): 15–23.

Millar, C. and T. Saddington. 1993. How Do You Teach Learning? *Studies in Continuing Education* 15 (1): 26–38.

Miller, A. 2007. Rhetoric, Paideia and the Old Idea of a Liberal Education. *Journal of Philosophy of Education* 41 (2): 183–206.

Miller, C.R. 1987. Aristotle' s "Special Topics" in Rhetorical Practice and Pedagogy. *Rhetoric Society Quarterly* 17 (1): 61–70.

Millwood, C. 2014. Holistic Approach to Technology Enhanced Learning Map (HoTEL). http://cmapspublic3.ihmc.us/rid=1LNV3H2J9-HWSVMQ-13LH/Learning Theory.cmap.

Mingers, J. and G. Walsham. 2010. Toward Ethical Information Systems: The Contribution of Discourse Ethics. *MIS Quarterly* 34 (4): 833–54.

Mjøset, L. 2009. The Contextualist Approach to Social Science Methodology. In *The Sage Handbook of Case-Based Methods*, 39–68. London: Sage Publications.

Mlitwa, N.B.. W.. 2007. Technology for Teaching and Learning in Higher Education Contexts: Activity Theory and Actor Network Theory Analytical Perspectives. *International Journal of Education and Development Using Information and Communication Technology* 3 (4): 54–70.

Močinić, S.N. 2012. Active Teaching Strategies in Higher Education. *Metodički Obzori* 7 (2): 97–105.

Mocker, D.W. and G.E. Spear. 1983. Lifelong Learning: Formal, Nonformal, Informal, and Self-Directed. *Adult Education Quarterly* 33 (4): 260–260.

Mok, H.N. 2014. The Flipped Classroom. *Journal of Information Systems Education*

25 (1): 7.

Moody, D. and A. Buist. 1999. Improving Links Between Information Systems Research and Practice - Lessons from the Medical Profession. In *Proc. 10th Australasian Conference on Information Systems*, 645–59.

Moon, J.A. 2014. Learning Journals: A Handbook for Reflective Practice and Professional Development. Accessed October 13. http://www.amazon.com/Learning-Journals-Reflective-Professional-Development/dp/0415403758/ref=pd_bxgy_b_text_z.

Morrow, G., C. Rothwell and P. Wright. 2012. Self-Directed Learning Groups: A Vital Model for Education, Support and Appraisal amongst Sessional GPs. *Education for Primary Care* 23 (4): 270–76.

Morrow, R.A. and C.A. Torres. 2002. *Reading Freire and Habermas*. New York: Teachers College Press.

Morrow, W. 1994. Entitlement and Achievement in Education. *Studies in Philosophy and Education* 13 (1): 3–47.

Mortensen, D.E. 2008. The Loci of Cicero. *Rhetorica: A Journal of the History of Rhetoric* 26 (1): 31–56.

Moser, P.K. 2002. *The Oxford Handbook of Epistemology*. Edited by Paul K Moser. Oxford: Oxford University Press.

Mouton, J. 2007. Post-Graduate Studies in South Africa: Myths, Misconceptions and Challenges. *South African Journal of Higher Education* 21 (8): 1078–90.

Muller, J. 2015. The Future of Knowledge and Skills in Science and Technology Higher Education. *Higher Education* 70 (3). Springer Netherlands: 409–16.

Murris, K. 2016. #Rhodes Must Fall: A Posthumanist Orientation to Decolonising Higher Education Institutions. *South African Journal of Higher Education* 30 (3): 274–94.

Mustafa, Y. 2004. A Systematic Framework for Conducting Research Projects in Undergraduate Courses. *Journal of Information Systems Education* 15 (1): 35–40.

Myers, M.D. and H.K. Klein. 2011. A Set of Principles for Conducting Critical Research

in Information Systems. *MIS Quarterly* 35 (1): 17–36.

Naidoo, R. 2004. Fields and Institutional Strategy: Bourdieu on the Relationship between Higher Education, Inequality and Society. *British Journal of Sociology of Education* 25 (4): 457–71.

Nash, J. 2014. Using Blended Learning to Increase Student Engagement in a Large Undergraduate Class. In *South African Computer Lecturers Assosciation*, 7–14.

Natsis, A., P.M. Papadopoulos and N. Obwegeser. 2018. Research Integration in Information Systems Education: Students' Perceptions on Learning Strategies, Skill Development, and Performance. *Journal of Information TEchnology Education: Research* 17: 345–63.

Newman, J.H. 1852. The Idea of a University. London, U.K.

Newman, J.H. 1907. Knowledge Viewed in Relation to Learning. In *The Idea of a University*, edited by Martin J. Svaglic. Notre Dame: U of Notre Dame.

Newstrom, J.W. 1983. The Management of Unlearning: Exploding the "Clean Slate" Fallacy. *Training & Development Journal* 37 (8): 36.

Ngwenyama, O. and S. Klein. 2018. Phronesis , Argumentation and Puzzle Solving in IS Research: Illustrating an Approach to Phronetic IS Research Practice. *European Journal of Information Systems*, no. February.

Nicholas, L.J. 1985. *The Socio-Economic Circumstances of the UWC Student and the Task of the University*. Belville: UWC.

Nicholls, G. 2002. Mentoring: The Art of Teaching and Learning. In *The Theory and Practice of Teaching*, edited by Peter Jarvis, 132–42. London, U.K.: Kogan Page Limited.

Nonaka, I. 1994. A Dynamic Theory of Organizational Knowledge Creation. *Organization Science* 5 (1): 14–37.

Nordquist, J. and A. Laing. 2015. Designing Spaces for the Networked Learning Landscape. *Medical Teacher* 37 (4): 337–43.

Norman, G.R. and H.G. Schmidt. 1992. The Psychological Basis of Problem-Based Learning: A Review of the Evidence. *Academic Medicine*. 67 (9): 557–65.

O'Hanlon, C. 1996. Why Is Action Research a Valid Basis for Professional

Development? In *Teacher Education Policy: Some Issues Arising from Research and Practice*, edited by Rob McBride. London: Falmer Press.

Obwegeser, N. and P.M. Papadopoulos. 2016. Integrating Research and Teaching in the IS Classroom: Benefits for Teachers and Students. *Journal of Information Systems Education* 27 (4): 249–58.

Oleson, A. and M.T. Hora. 2014. Teaching the Way They Were Taught? Revisiting the Sources of Teaching Knowledge and the Role of Prior Experience in Shaping Faculty Teaching Practices. *Higher Education* 68 (1): 29–45.

Oliveira, A.M.C.A., S.C. dos Santos and V.C. Garcia. 2013. PBL in Teaching Computing: An Overview of the Last 15 Years. In *Proceedings - Frontiers in Education Conference, FIE*, 267–72.

Omar, D. 2000. Historically Black Universities: Challenges and Strategies for the Next Millennium. In *Transforming South African Universities*, edited by P.F. Iya, N.S. Rembe, and J. Balaro, 4–28. Africa Institute of South Africa.

One Graph Showing South Africa's Credit Rating History: 1994 – 2017. 2018. *BusinessTech*. https://businesstech.co.za/news/finance/213641/one-graph-showing-south-africas-credit-rating-history-1994-2017/.

Online Etymology Dictionary. 2010. *Harper, Douglas*. Accessed June 1. http://www.etymonline.com/.

Oravec, C. 1976. "Observation" in Aristotle's Theory of Epideictic. *Philosophy and Rhetoric* 9 (3): 162–75.

Orlikowski, W.J. and C.S. Iacona. 2001. Research Commentary: Desperately Seeking the "IT" in IT Research - A Call to Theorizing the IT Artifact. *Information Systems Research* 12 (2): 121–34.

Orlikowski, W.J., C.S. Iacono and C. Suzanne. 2001. Research Commentary: Desperately Seeking "IT" in IT Research — A Call to Theorizing the IT Artifact. *Information Systems Research* 12 (2): 121–34.

Palmer, P.J. 1998. *The Courage to Teach: Exploring the Inner Landscape of a Teacher's Life*. San Francisco, CA: Jossey-Bass.

Parkinson, J. and A. Crouch. 2011. Education, Language, and Identity Amongst Students at a South African University. *Journal of Language, Identity and*

Education 10 (2): 83–98.

Paul, R. and L. Elder. 2001. *The Miniature Guide to Critical Thinking*. Tomales, CA: The Foundation for Critical Thinking.

Paxton, M.I.J. 2009. "It's Easy to Learn When You Using Your Home Language but with English You Need to Start Learning Language before You Get to the Concept": Bilingual Concept Development in an English Medium University in South Africa. *Journal of Multilingual and Multicultural Development* 30 (4): 345–59.

Pecorino, P. and S. Kincaid. 2007. Why Should I Care about SOTL? The Professional Responsibilities of Post-Secondary Educators. *International Journal for the Scholarship of Teaching and Learning* 1 (1): 1–6.

Pedersen, S. and M. Liu. 2003. Teachers' Beliefs about Issues in the Implementation of a Student-Centered Learning Environment. *Educational Technology Research and Development* 51 (2): 57–76.

Pells, E.G. 1954. *300 Year of Education in South Africa*. Cape Town: Juta and Co. Limited.

Penny, A. and H. Africa. 2006. *University of the Western Cape: Report of the Midterm Evaluation Commission South Africa*. Brussels, Belgium: VLIR.

Perrotta, C. and E. Houghton. n.d. *Game-Based Learning : Latest Evidence and Future Directions*.

Piaget, J. and B. Inhelder. 1958. *Growth of Logical Thinking: From Childhood to Adolescence*. New York, NY: Basic Books.

Point, F. n.d. #FeesMustFall and the SA Economy 2015 Strike Timeline.

Ponterotto, J.G. 2006. Brief Note on the Origins , Evolution , and Meaning of the Qualitative Research Concept " Thick Description ." *The Qualitative Report* 11 (3): 538–49.

Postareff, L., S. Lindblom-Ylänne and A. Nevgi. 2007. The Effect of Pedagogical Training on Teaching in Higher Education. *Teaching and Teacher Education* 23: 557–71.

Postareff, L., S. Lindblom-Ylänne and A. Nevgi. 2008. A Follow-up Study of the Effect

of Pedagogical Training on Teaching in Higher Education. *Higher Education* 56 (1): 29–43.

Potter, M.K. and E.D.H. Kustra. 2011. The Relationship between Scholarly Teaching and SoTL: Models, Distinctions, and Clarifications. *International Journal for the Scholarship of Teaching and Learning* 5 (1): 1–18.

Pratt, D.D. 1988. Andragogy as a Relational Construct. *Adult Education Quarterly* 38 (3): 160–72.

Prince, M.J., R.M. Felder and R. Brent. 2007. Does Faculty Research Improve Undergraduate Teaching? An Analysis of Existing and Potential Synergies. *Journal of Engineering Education* 96 (4): 283–94.

Pring, R. 2001. Education as a Moral Practice. *Journal of Moral Education* 30 (2): 101–12.

Quinn, L. and J.-A. Vorster. 2017. Connected Disciplinary Responses to the Call to Decolonise Curricula in South African Higher Education. In *Developing the Higher Education Curriculum*, edited by Brent Carnell and Dilly Fung.

Race, P. 2002. Evidencing Reflection: Putting the "w" into Reflection. *The Higher Education Academy (ESCalate)*. http://escalate.ac.uk/resources/reflection/index.html.

Rahman, F., H. Hu, D. Brylow and C. Kussmaul. 2017a. Bringing Undergraduate Research Experience in Non-R1 Institutions. *Proceedings of the 2017 ACM SIGCSE Technical Symposium on Computer Science Education - SIGCSE '17*: 671–72.

Rahman, F., S. Matthews, K. Shaw and A. Danyluk. 2017b. Can We Really Do It?: Conducting Significant Computer Science Research in Primarily Undergraduate Institutions (PUIs) (Abstract Only). In *SIGCSE '17 Proceedings of the 2017 ACM SIGCSE Technical Symposium on Computer Science Education*, 729–729. Seattle, Washington, USA.

Rainer, R.K. and M.D. Miller. 2005. Examining Differences Across Journal Rankings. *Communication of the ACM* 48 (2): 91–94.

Rakrouki, Z., M. Gatenby, S. Cantore, T. Davidson and T. Rowledge. 2017. The Opening Conference: A Case Study in Undergraduate Co-Design and Inquiry-

Based Learning. *International Journal for Students as Partners* 1 (2): 1–9.

Ramsden, P. 2003. *Learning to Teach in Higher Education*. London: Routledge Falmer.

Ravenscroft, A. 2011. New Approach to Understanding Networked Learning. *International Review of Research in Open and Distance Learning* 12.3.

Reflective Learning. 2013. http://clt.curtin.edu.au/teaching_learning_practice/student_centred/reflective.cfm.

Regelski, T.A. 1998. The Aristotelian Bases of Praxis for Music and Music Education as Praxis. *Philosophy of Music Education Review* 6 (1): 22–59.

Reis, R. 2014. The Nature of Self-Directed Learning. In *Theory and Practice*, edited by Sharan B. Merriam and Laura L. Bierema, 10–12. San Francisco: Jossey-Bass Inc.

Revans, R. 1982a. *The Origins and Growth of Action Learning*. Lund, Sweden: Studentlitteratur.

Revans, R. 1991. The Concept, Origin and Growth of Action Learning. *Action Learning for Improved Performance*.

Revans, R.W. 1980. *Action Learning: New Techniques for Management*. London: Blond and Briggs Ltd.

Revans, R.W. 1982b. What Is Action Learning? *Journal of Management Development* 1 (3): 64–75.

Rinpoche, C.T. 1983. Spirituality. *L.A. Lecture*. http://heavythinker.xanga.com/729697753/chogyam-trungpa-rinpoche-la-lecture-1983/.

Riordan, R.J., M.J. Hine and T.C. Smith. 2017. An Integrated Learning Approach to Teaching an Undergraduate Information Systems Course. *Journal of Information Systems Education* 28 (1): 59–69.

Robertson Jr., D.W. 1946. A Note on the Classical Origin of "Circumstances" in the Medieval Confessional. *Studies in Philology* 43 (1): 6–14.

Rødnes, K. 2012. "It's Insanely Useful!" Students' Use of Instructional Concepts in

Group Work and Individual Writing. *Language & Education: An International Journal* 26 (3): 183–99.

Rogers, C. 1969. *Freedom to Learn. A View of What Education Might Become.* Columbus, OH: Merrill.

Rogers, C.R. 1983. *Freedom to Learn for the 80's.* Ohio, US: Merrill.

Roget, P.M. 1911. *Roget's Thesaurus of English Words and Phrases*. Large Type. New York: Thomas Y. Crowell Company.

Roode, J.D. 1993. Implications for Teaching of a Process-Based Research Framework for Information Systems. In *Proceedings of the International Academy for Information Management Conference*, edited by L. Smith, 1–10. Orlando, Florida.

Rothera, M., S. Howkins and J. Hendry. 1991. The Role of Subject Mentor in Further Education. *British Journal of In-Service Education* 17 (2): 126–37.

Rothstein, D. and L. Santana. 2017. *Make Just One Change: Teach Students to Ask Their Own Questions*. Harvard Education Press.

Rubinelli, S. 2009. Cicero's Use of Locus in De Inventione: The Classical Technique of Constructing Arguments from Aristotle to Cicero. *Ars Topica* II: 93–109.

Ruddin, L.P. 2006. You Can Generalize Stupid! Social Scientists, Bent Flyvbjerg, and Case Study Methodology. *Qualitative Inquiry* 12 (4): 797–812.

Ryan, R.S. and A. Milevsky. 2016. *Launching A Successful Research Program at a Teaching University*. Abingdon, Oxon: Routledge.

Ryberg, T. and B. Norgaard. 2013. Introducing Problem Based Learning in Higher Education. *Problem Based Learning in Higher Education* 1 (1): I-261.

Ryle, G. 1949. *The Concept of Mind*. Edited by New York Barnes Noble. *Philological Quarterly*. Vol. 1. Watford, Herts: William Brendon and Son Ltd.

Saavedra, A.R. and D. V. Opfer. 2012. Learning 21st-Century Skills Requires 21st-Century Teaching. *Phi Delta Kappan* 94 (2): 8–13.

Saddington, T. 2000. The Roots and Branches of Experiential Learning. *National Society for Experiential Education (NSEE) Quarterly*, no. December 2000.

Saldaña, J. 2010. *The Coding Manual for Qualitative Researchers*.

Salsman, N., C.L. Dulaney, R. Chinta, V. Zascavage and H. Joshi. 2013. Student Effort in and Percieved Benefits from Undergraduate Research. *College Student Journal* 47 (1): 202–12.

Sampson, S. and S. Clegg. 2002. Making Social Science Matter: Why Social Inquiry Fails and How It Can Succeed Again (Book Review). *Public Administration Quarterly* 10 (5): 671–73.

Samuelowicz, K. and J.D. Bain. 1992. Conceptions of Teaching Held by Academic Teachers. *Higher Education* 24 (1): 93–111.

Samuelowicz, K. and J.D. Bain. 2001. Revisiting Academics' Beliefs about Teaching and Learning. *Higher Education* 41 (3 (April)): 299–325.

SAU Strategic Plan 2010-2015 Action Plan. 2015.

Saulnier, B.M., J.P. Landry, H.E. Longenecker and T.A. Wagner. 2008. From Teaching to Learning : Learner-Centered Teaching and Assessment in Information Systems Education. *Journal of Information Systems Education* 19 (2): 169–75.

Saville, B.K. and T.E. Zinn. 2011. Interteaching. *New Directions for Teaching and Learning* 128 (1): 53–61.

Sayed, Y., G. Kruss and S. Badat. 1998. Students' Experience of Postgraduate Supervision at the University of the Western Cape. *Journal of Further and Higher Education* 22 (3): 275–85.

Schön, D.A. 1983. *The Reflective Practitioner. How Professionals Think in Action*. USA: Basic Books.

Schön, D.A. 1987. *Educating the Reflective Practitioner: Toward a New Design for Teaching and Learning in the Professions*. San Francisco, CA: Jossey-Bass.

School Pass Marks in South Africa vs the Rest of the World. 2018. *BusinessTech*. Accessed December 21. https://businesstech.co.za/news/lifestyle/231111/school-pass-marks-in-south-africa-vs-the-rest-of-the-world/.

Schools, C.C. 2007. Problem Based Learning. *Center for Teaching Excellence*. United States Military Academy (USMA).

Schram, S.F. 2004. Beyond Paradigm: Resisting the Assimilation of Phronetic Social Science. *Politics and Society* 32 (3): 417–33.

Schubert, W.H. n.d. Paradigm of Critical Praxis.

Schubert, W.H. 1986. *Curriculum: Perspective, Paradigm, and Possibility*. New York, NY: Macmillan Publishing Company.

Schubert, W.H. 1996. Perspectives on Four Curriculum Traditions. *Educational Horizons* 74 (4): 169–76.

Schudel, I.J. 2012. Examining Emergent Active Learning Processes as Transformative Praxis: The Case of the Schools and Sustainability Professional Development Programme. Rhodes University, South Africa.

Schultz, C. and S. Kim. 2008. Authentic Problem-Based Collaborative Learning Practices for Professional Development in Teacher Education. *International Journal of Educational Leadership Preparation* 3 (2): 1–9.

Schunk, D. and B. Zimmerman. 1998. *Self-Regulated Learning: From Teaching to Self-Reflective Practice*.

Schwab, J.J. 1983. The Practical: Something for Curriculum Professors to Do. *Curriculum Inquiry* 13 (3): 239–65.

Schwaber, K. 2004. *Agile Project Management with Scrum*. Redmond: Microsoft Press.

Segers, M., F. Dochy and E. de Corte. 1999. Assessment Practices and Students' Knowledge Profiles in a Problem-Based Curriculum. *Learning Environments Research* 2: 191–213.

Selin, H. 1988. Teaching Research Methods to Undergraduates. *College Teaching* 36 (2): 54–56.

Serrat, O. 2009. The Five Whys Technique. *Knowledge Solutions*. https://www.adb.org/sites/default/files/publication/27641/five-whys-technique.pdf.

Shaban, K.B., M. Abdulwahed and A. Younes. 2015. Problem-Centric Process for Research-Based Learning. *International Journal of Engineering Pedagogy* 5 (2): 24–31.

Sharma, P. and M.J. Hannafin. 2007. Scaffolding in Technology-Enhanced Learning Environments. *Interactive Learning Environments* 15 (1): 27–46.

Sharples, M., J. Taylor and G. Vavoula. 2007. A Theory of Learning for the Mobile Age. In *The Sage Handbook of Elearning Research*, edited by C. Andrews and R. Haythornthwaite, 221–47. London: Sage.

Shavelson, R.J.R. and P. Stern. 1981. Research on Teachers' Pedagogical Thoughts, Judgments, Decisions, and Behaviour. *Review of Educational Research* 51 (4): 455–98.

Shephard, K., K. Brown, S. Connelly, M. Hall, J. Harraway, J. Martin, M. Mirosa, et al. 2017. Empowering Students in Higher-Education to Teach and Learn. *New Zealand Journal of Educational Studies* 52 (1). Springer Singapore: 41–55.

Sherman, H. 1976. Dialectics as a Method. *Critical Sociology* 6 (4): 57–64.

Siegel, H., D.C. Phillips and E. Callan. 2018. Philosophy of Education. In *The Stanford Encyclopedia of Philosophy*, edited by Edward N. Zalta.

Siemens, G. 2005. Connectivism : A Learning Theory for the Digital Age. *International Journal of Instructional Technology and Distance Learning* 2 (1): 1–9.

Situated Learning. 2007. Northern Illinois University. https://www.niu.edu/facdev/_pdf/guide/strategies/situated_learning.pdf.

Slater, J.J., S.M. Fain and C.A. Rossatto. 2002. *The Freirean Legacy: Educating for Social Justice*. New York: Peter Lang Publishing.

Sloan, M.C. 2010. Aristotle's Nicomachean Ethics as the Original Locus for the Septem Circumstantiae. *Classical Philology* 105 (3): 236–51.

Smith, D.L. and T.J. Lovat. 2003. *Curriculum. Action on Reflection*. 4th ed. Riverwood, NSW: Social Science Press.

Smith, E. 2011a. Teaching Critical Reflection. *Teaching in Higher Education* 16 (2): 211–23.

Smith, M.K. 2010. *David A. Kolb on Experiential Learning*. Milton Keynes: Open University Press.

Smith, M.K. 2011b. What Is Praxis? *Encyclopedia of Informal Education*. http://www.infed.org/biblio/b-praxis.htm.

Smith, M.K. 2013. Chris Argyris: Theories of Action, Double-Loop Learning and Organizational Learning. *The Encyclopedia of Informal Education*.

http://infed.org/mobi/chris-argyris-theories-of-action-double-loop-learning-and-organizational-learning/.

Smith, N.K. 1918. A Commentary to Kant's "Critique of Pure Reason." In *A Commentary to Kant's "Critique of Pure Reason,"* 694. London: Macmillan and Co.

Smith, R. 1998. Dialectic and Method in Aristotle. In *From Puzzles to Principles: Essays on Aristotle's Dialectic*, 1–14. New York: Lexington Books.

Smith, R. 2016. Aristotle's Logic. In *Stanford Encyclopedia of Philosophy*, edited by Edward N. Zalta, Spring:1–29.

Smith, T., C. Edwards-Groves and R. Brennan Kemmis. 2010. Pedagogy, Education and Praxis. *Pedagogy, Culture and Society* 18 (1): 1–8.

Sockett, H. 1976. *Designing the Curriculum*. Bath: Open Books Publishing Limited.

South African Performance on the Trends in International Mathematics and Science Study (TIMSS). 2017. *National Advisory Council on Innovation*. Pretoria. http://www.naci.org.za/index.php/south-african-performance-on-the-trends-in-international-mathematics-and-science-study/.

Splichal, J.M., J. Oshima and R. Oshima. 2018. Regulation of Collaboration in Project-Based Learning Mediated by CSCL Scripting Reflection. *Computers and Education* 125 (August 2017). Elsevier: 132–45.

Spronken-Smith, R. and R. Walker. 2010. Can Inquiry-Based Learning Strengthen the Links between Teaching and Disciplinary Research? *Studies in Higher Education* 35 (6): 723–40.

Squires, G. 1999. *Teaching as a Professional Discipline*. London, UK: Falmer Press.

Squires, G. 2010. Praxis: A Dissenting Note. *Journal of Curriculum Studies* 35 (1): 1–7.

Sriarunrasmee, J., W. Techataweewan and R.P. Mebusaya. 2015. Blended Learning Supporting Self-Directed Learning and Communication Skills of Srinakharinwirot University's First Year Students. *Procedia - Social and Behavioral Sciences* 197 (February). Elsevier B.V.: 1564–69.

Srinivasan, M., M. Wilkes, F. Stevenson, T. Nguyen and S. Slavin. 2007. Comparing

Problem-Based Learning with Case-Based Learning: Effects of a Major Curricular Shift at Two Institutions. *Academic Medicine : Journal of the Association of American Medical Colleges* 82 (1): 74–82.

Stahl, B.C. 2008. The Ethical Nature of Critical Research in Information Systems. *Information Systems Journal* 18 (2): 137–63.

Stark, J. and L. Lattuca. 1997. *Shaping the College Curriculum: Academic Plans in Action*. Needham Heights, MA.: Allyn and Bacon.

Stein, D. 1998. Situated Learning in Adult Education. *ERIC Digest*. https://www.ericdigests.org/1998-3/adult-education.html.

Stein, D. 2000. Teaching Critical Reflection. *Myths and Realities*. http://www.calpro-online.org/eric/docs/mr00024.pdf.

Stenhouse, L. 1970. Some Limitations of the Use of Objectives in Curriculum Research and Planning. *Paedagogica Europaea* 6: 73–83.

Stenhouse, L. 1975. *An Introduction to Curriculum Research and Development*. London: Heinemann.

Stentoft, D. 2017. From Saying to Doing Interdisciplinary Learning: Is Problem-Based Learning the Answer? *Active Learning in Higher Education* 18 (1): 51–61.

Sternberg, R. and L. Zhang. 2011. *Perspectives on Thinking, Learning, and Cognitive Styles*. New York, NY: Routledge.

Strike, K. 1988. The Ethics of Teaching. *The Phi Delta Kappan*.

Strike, K. and J. Soltis. 1992. *The Ethics of Teaching*. New York: Teachers College Press.

Studtmann, P. 2013. Aristotle's Categories. Edited by Edward N. Zalta. *Stanford Encyclopedia of Philosophy (SEP)*. http://plato.stanford.edu/archives/sum2014/entries/aristotle-categories/.

Suhonen, J. and E. Sutinen. 2006. FODEM: Developing Digital Learning Environments in Widely Dispersed Learning Communities. *Educational Technology and Society* 9 (3): 43–55.

Summerhill - An Overview. 2018. Accessed December 21. http://www.summerhillschool.co.uk/an-overview.php.

Tallmon, J.M. 1994. How Jonsen Really Views Casuistry: A Note on the Abuse of Father Wildes. *The Journal of Medicine and Philosophy* 19: 103–13.

Tams, S. 2014. Cultivating and Nurturing Undergraduate IS Research. *Journal of Information Systems Education* 25 (3): 173–80.

Taylor, B. and M. Kroth. 2009. Andragogy's Transition Into The Future: Meta-Analysis of Andragogy and Its Search for a Measurable Instrument. *Journal of Adult Education* 38 (1): 22–42.

Teaching Portfolio at SAU. 2010. http://www.uwc.ac.za/TandL/Documents/Teaching Portfolio at UWC.pdf.

Tétard, F. 2005. A Constructivist Approach to Information Systems Teaching : A Case Study on a Design Course for Advanced-Level University Students. *Journal of Information Systems Education* 16 (2): 167–76.

Thai, N.T.T., B. De Wever and M. Valcke. 2017. The Impact of a Flipped Classroom Design on Learning Performance in Higher Education: Looking for the Best "Blend" of Lectures and Guiding Questions with Feedback. *Computers and Education* 107. Elsevier Ltd: 113–26.

The Merriam-Webster Dictionary of Synonyms and Antonyms. 1992. Springfield, Massachusetts: Merriam-Webster.

The University Experiment. 2014. *Nature* 514: 287.

The Worrying Truth behind SA's "Improved" Maths and Science Marks. 2018. *BusinessTech*. Accessed December 21. https://businesstech.co.za/news/lifestyle/218275/the-worrying-truth-behind-sas-improved-maths-and-science-marks/.

Thomas, G. 2010. Doing Case Study: Abduction Not Induction, Phronesis Not Theory. *Qualitative Inquiry* 16 (7): 575–82.

Thomas, G. 2011. The Case: Generalisation, Theory and Phronesis in Case Study. *Oxford Review of Education* 37 (1): 21–35.

Topi, H., J.S. Valacich, R.T.R. Wright, K. Kaiser, J.F. Nunamaker, J.C. Sipior and G.J. de Vreede. 2010. IS 2010: Curriculum Guidelines for Undergraduate Degree Programs in Information Systems. *Communications of the Association for Information Systems* 26 (1): 359–428.

Totten, S., T. Sills, A. Digby and P. Russ. 1991. *Cooperative Learning: A Guide to Research*. New York: Garland.

Trowler, P. and T. Wareham. 2007. Reconceptualising the "Teaching-Research Nexus." In *Proceedings of the Annual HERDSA Conference 2007: Enhancing Higher Education Theory and Scholarship*. Adelaide.

Tsui, A.B.M. 2003. Characteristics of Expert and Novice Teachers. In *Understanding Expertise in Teaching: Case Studies in ESL Teaching*, 22–41. Cambridge, MA.: Cambridge University Press.

Turan, S. 2011. Plato's Concept of Education in'Republic'and Aristotle's Concept of Education in'Politics'. *Education & Science* 36 (162).

Tyler, R.R.R.W. 2013. *Basic Principles of Curriculum and Instruction*. 1st Revise. London: The University of Chicago Press.

Tynjälä, P., Tynjälä, PaK ivi TynjaK laK, Tynjälä and PaK ivi TynjaK laK. 1999. Towards Expert Knowledge ? A Comparison between a Constructivist and a Traditional Learning Environment in the University Pa. *International Journal of Education Research* 31: 357–442.

UWC Then and Now. 2014. Accessed October 31. http://prospectus.uwc.ac.za/educate/about/then-now/.

Uys, W.F. 2006. The Managing of Multiple Inter-Connected Projects : The Programme Management and Visionary Leadership Approach. In *Proceedings of the 2006 PMSA International Conference*, 1–11. Johannesburg.

Uys, W.F. and W. Chigona. 2015. Strengthening the Teaching-Research Nexus in a Large First Year Information Systems Class. In *Proceedings of the 44th Annual Southern African Computer Lecturers Association*, edited by Emma Coleman, 100–109. Johannesburg: University of the Witwatersrand.

Uys, W.F., A. Mia, G.J. Jansen, H. van der Schyff, M.A. Josias, M. Khusu, M. Gierdien, et al. 2012. Smartphone Application Usage amongst Students at a South African University. In *IST-Africa 2012 Conference Proceedings*, edited by Paul Cunningham and Miriam Cunningham, 1–11. Dar es Salaam: IIMC.

van Manen, M. 1995. On the Epistemology of Reflective Practice. *Teachers and Teaching: Theory and Practice* 1 (1). Routledge: 33–50.

Van Manen, M. 1991. Reflectivity and the Pedagogical Moment: The Normativity of Pedagogical Thinking and Acting. *Journal of Curriculum Studies* 23 (6): 507–36.

van Zyl, I. 2015. Disciplinary Kingdoms: Navigating the Politics of Research Philosophy in the Information Systems. *European Journal of Information Systems in Developing Countries* 70 (1): 1–17.

Venkatesh, V., J. Thong and X. Xu. 2012. Consumer Acceptance and Use of Information Technology: Extending the Unified Theory of Acceptance and Use of Technology. *MIS Quarterly* 36 (X): 1–22.

Venkatesh, V., J.Y.L. Thong, B. Statistics, X. Xu and T. Acceptance. 2016. Unified Theory of Acceptance and Use of Technology: A Synthesis and the Road Ahead. *Jais* 17 (5): 328–76.

Verkasalo, H. 2010. Analysis of Smartphone User Behavior. *2010 Ninth International Conference on Mobile Business and 2010 Ninth Global Mobility Roundtable ICMBGMR*. IEEE: 258–63.

Vygotsky, L.S. 1978. *Mind in Society: The Development of Higher Psychological Processes*. Edited by Michael Cole, Vera John-Steiner, Sylvia Scribner, and Ellen Souberman. Cambridge, MA.: Harvard University Press.

Waite, D. 2013. Teaching the Unteachable: Some Issues of Qualitative Research Pedagogy. *Qualitative Inquiry* 20 (3): 267–81.

Walker, J. 2015. Student Voice in Curriculum Development. *International School* 17 (2): 35–37.

Wallace, A. 2014. Social Learning Platforms and the Flipped Classroom. *International Journal of Information and Education Technology* 4 (4): 293–96.

Wallace, R. 2011. A Reflective Diary for Doctoral Studies. http://www.etgt.co.uk/wp-content/uploads/2012/01/A-Reflective-Diary-for-Doctoral-Studies_Discussion.pdf.

Wallace, S., ed. 2015. A Dictionary of Education. [Online]: Oxford University Press. doi:10.1093/acref/9780199679393.001.0001.

Wannapiroon, P. 2014. Development of Research-Based Blended Learning Model to Enhance Graduate Students' Research Competency and Critical Thinking Skills. *Procedia - Social and Behavioral Sciences* 136. Elsevier B.V.: 486–90.

Ward, R. 1998. Active, Collaborative and Case-Based Learning with Computer-Based Case Scenarios. *Computers and Education* 30 (1–2): 103–10.

Weed, R. 2007. *Aristotle on Stasis: A Moral Psychology of Political Conflict*. Berlin, Germany: Logos Verlag.

Wellington, B. and P. Austin. 1996. Orientations to Reflective Practice. *Educational Research* 38 (3): 307–16.

Wenderholm, E. 2004. Challenges and the Elements of Success in Undergraduate Research. *The SIGCSE Bulletin* 36 (4): 73–75.

Weurlander, M. and T. Stenfors-Hayes. 2008. Developing Medical Teachers' Thinking and Practice: Impact of a Staff Development Course. *Higher Education Research & Development* 27 (2): 143–53.

Whetten, D.A. 1989. What Constitutes a Theoretical Contribution? *The Academy of Management Review* 14 (4): 490.

Whitehead, A.N. 1967. *The Aims of Education and Other Essays*. New York, NY: The Free Press.

Whitehead, J. 2000. How Do I Improve My Practice? Creating and Legitimating an Epistemology of Practice. *Reflective Practice* 1 (1): 91–104.

Wikipedia. 2017. *Wikipedia, The Free Encyclopedia*. Accessed June 1. https://en.wikipedia.org.

Wildes, K. 1993. The Priesthood of Bioethics and the Return of Casuistry. *Journal of Medicine and Philosophy* 18 (1): 33–49.

Wilson, A.L. and R.C. Kiely. 2002. Towards a Critical Theory of Adult Learning / Education : Transformational Theory and Beyond. In *Annual Meeting of the Adult Education Research Conference*. Raleigh.

Wilson, B.G., ed. 1996. *Constructivist Learning Environments: Case Studies in Instructional Design*. Englewood Cliffs, NJ.: Educational Technology Publications, Inc.

Wilson, L.O. 2013. Writing Curriculum - Aims, Goals, and Objectives. *The Second Principle*. http://thesecondprinciple.com/optimal-learning/brain-based-education-an-overview.

Winberg, C., J. Garraway, P. Engel-Hills and C. Jacobs. 2011. *Work-Integrated Learning: Good Practice Guide*. *HE Monitor*.

Wirth, K.R. and D. Perkins. 1998. *Learning to Learn*. Edited by Sebastian Thrun and Lorien Pratt. Springer Science & Business Media.

Wise, R.I. 1976. The Use of Objectives in Curriculum Planning: A Critique of Planning by Objectives. *Curriculum Theory Network* 5 (4): 280–89.

Wood, D. 2009. Challenges to Strengthening the Teaching and Research Nexus in the First-Year Undergraduate Curriculum. *The International Journal of Learning* 15 (12): 111–20.

Woolley, N. and Y. Jarvis. 2007. Situated Cognition and Cognitive Apprenticeship: A Model for Teaching and Learning Clinical Skills in a Technologically Rich and Authentic Learning Environment. *Nurse Education Today* 27 (1).

Wright, M.C. 2000. Getting More out of Less: The Benefits of Short-Term Experiential in Undergraduate Learning Sociology Courses. *Teaching Sociology* 28 (2): 116–26.

Yost, D.S., S.M. Sentner and A. Forlenza-Bailey. 2000. An Examination of the Construct of Critical Reflection: Implications for Teacher Education Programming in the 21st Century. *Journal of Teacher Education* 51 (1): 39–49.

Young, M.F. 1993. Instructional Design for Situated Learning. *Educational Technology Research and Development* 41 (1): 43–58.

Zachman, J.A. 1987. A Framework for Information Systems Architecture. *IBM Systems Journal* 26 (3): 276–92.

Zachman, J.A. 1996. Concepts of the Framework for Enterprise Architecture. *White Paper*. Los Angeles, CA.

Zafeiriou, G., B. Nunes and N. Ford. 2001. Using Students ' Perceptions of Participation in Collaborative Learning Activities in the Design of Online Learning Environments 19: 83–106.

Zhang, L., S. Kalyuga, C. Lee and C. Lei. 2016. Effectiveness of Collaborative Learning of Computer Programming Under Different Learning Group Formations According to Students' Prior Knowledge: A Cognitive Load Perspective. *Journal of Interactive Learning Research* 27 (2): 171–92.

Zimmerman, B.J. 1989. A Social Cognitive View of Self-Regulated Academic Learning. *Journal of Education Psychology* 81 (3): 1–23.

Zull, J.. 2002. *The Art of Changing the Brain: Enriching the Practice of Teaching by Exploring the Biology of Learning*. Sterling, VA: Stylus Publishing, LLC.

Chapter XII Appendices

XII.1 Learning Theories and Approaches

XII.1.i Learning Theories that Informed this study

Dreyfus and Dreyfus	Teaching and Learning	Key Ideas	Schools of Thought	Key Authors
Initiate	No training	People learn naturally if unconstrained to follow their own interests	No-schooling, un-schooling or de-schooling	Holt Illich
		The capabilities that learners exhibit without teaching or peer influence. (Natural abilities)	Zone of Proximal Development	Vygotsky
		Knowledge is not passively received, but actively built up through mental representations of the perceptive world.	Constructivism	Piaget Von Glaserfield Millwood
		Imitation (repeat what was done to him or what others are doing.	Teaching by imitation	(Leibowitz et al., 2015)
Novice	In training	Formal (and many others) Student is provided with context free (theoretical) rules and procedures to apply in specific scenarios.	Instructional Design Curriculum Aims Educational Objectives Mastery Learning Instructivism Pedagogy Scientific Pedagogy	Gagne (Aims) Bloom Bloom (Instructivism) (Pedagogy) Montessori
		Informal	Continuous Professional Development	(2010)
Competence	Individual	Learning as a social process in context	Situated Learning	Lave and Wenger
	Group	Interaction between a group of similar-interested people	Communities of practice	Lave and Wenger
	Organisation	Characteristics of an organisation that can adapt to changes in the environment	Organisational Learning Learning Organisations	Nonaka and Takeuchi

Dreyfus and Dreyfus	Teaching and Learning	Key Ideas	Schools of Thought	Key Authors
Proficiency	Learning through experience	Knowledge is gained through continuous interaction with personal and environmental experiences	Experiential Learning	Kolb
	Taught through experience	Infuses direct experience with the learning environment and context	Experiential Education	Dewey
Expertise	Learning by doing	Learning in action	Action Learning	Revans
	Self-taught	Self-directed Learning	Adult Learning	Knowles
	Reflective Practice	Thinking in action	Professional Practice Organisational Learning	Schön Argyris and Schön
Mastery	Critically Reflective	Developing consciousness of freedom, recognise authoritarian tendencies and connect knowledge to power and the ability to take action	Critical Pedagogy	Freire
		Freedom and Discipline, transdisciplinary education	Free choice	Whitehead
		Seven stages of moral reasoning	Moral Reasoning	Kohlberg
		Education transmits the ideology of capitalism and obedience	Capital	Marx
		Reasoning is a (emancipatory) communicative act	Communicative Action	Habermas

Table XII.1 Learning Theories that informed this study, grouped according to Dreyfuss and Dreyfuss (1980, 7–14)

XII.1.ii Characteristics of expert and novice teachers

Phase	Character	Novice	Expert
Preactive (Planning)			
	Sequence	Follows a linear model of planning as expressed in teacher education programs i.e. aims, objectives, content, lessons, activities, material	Seldom plan linearly. Firstly, considers aspects such as materials, resources, students' interests and abilities. Aims and purposes are considered last.
	Process	Problem-representation. Follows prescribed rules and procedures for planning	Problem-solving on how to structure the time and experiences of students in the classroom.
	Objectives	Adheres closely to the objectives in the prescribed curriculum guide	Use curriculum guides for building lessons but make changes according to the needs of the students and their own goals.
	Periods	Short-term planning not extending further than the first couple of sections.	Engages in longer-term planning including lesson, unit, term, and year planning based on previous experience.
	Efficiency	Cognitively overloaded in order to prepare for teaching. No or limited previous experience to fall back on.	Have plans in memory structures based on previous experience and rarely need to prepare from scratch.
	Written and mental plans	Detailed plans outlining what to do, say and teach in class, scripted lessons.	Plan lessons mentally with brief notes as reminder. Continuous internal dialogue on what to do.
	Patterns	Has difficulties anticipating problems, reluctant to depart from plans despite student cues.	Large number of patterns (repertoires) to draw on from experience. Able to anticipate possible difficulties and have contingent plans.
	Mental plans	Difficulty making sense of the sequence of topics and plan lessons in discrete units without coherence. Unsophisticated knowledge base thus less to draw on.	Consider students prior learning, academic performances, and abilities when planning. Have rich mental models to go by. Draw on a wide range of resources such as knowledge of students, and groups, the curriculum, the classroom organisation, student learning and the subject.
Preactive Characteristics			
	Autonomy	Planning is guided by rules and models that are often devoid of context	Fully aware of the contextual variables that they need to consider when planning. Knows what works in the classroom and what not. Ready to depart from rules and take responsibility for their own actions.
	Efficiency		Spend less time planning and planning is more effective.

Phase	Character	Novice	Expert
			Can recall experiences and make adjustments accordingly. Effortlessness in planning as they can rely on routinized behaviour. Mental plans are rich and reflect on past experiences
	Flexibility	Context is taken as external and often ignored.	More responsive to contextual cues and prepared to adjust plans accordingly. Context is integral to the teaching act,
	Knowledge base		Reflects a rich and integrated knowledge base. Integrate knowledge of the curriculum, students, teaching methods and strategies, context including expectations of others, the classroom setting, time of day/year etc.
Interactive Phase			
	Responding to classroom events	More inclined to describe the events using descriptive terms without depth analysis or interpretations.	Can readily recognise patterns in classrooms because of experience. Perceptions are more analytical and interpretive.
	Selectivity	Responds to more events and information. Remember great more detail but not able to differentiate the importance of specific information.	Focus only on classroom behaviour that are critical. Selectively remembers class details that are of importance to the instructional objectives.
	Improvisation	Difficulty in maintaining the direction of the lesson when responding to students. Have problems with questions that are unplanned.	Able to use student responses and questions as springboards for further discussions yet keep the lesson on track.
	Student centeredness	Instead of modifying the content to suit students, they ignore students need for the sake of the lesson.	Able to maintain a balance between student-centredness and content-centred
	Routines	Struggles to respond to changing environments due to lack of routines of dealing with similar situations.	Have a stock of routines that can be tailored to suit particular situations in order to manage the learning environment.
	Representation	Problem-representation. First-order responses marked by superficiality	Problem-solving. Representation and analysis are deeper and guided by principles

Table XII.2 Characteristics of Expert and Novice Teachers (Tsui, 2003, 23-39)

XII.1.iii Orientations to reflective practice

Level of Reflection	Habitual Action	Thoughtful Action	Content Reflection	Process Reflection	Premise Reflection
Orientation	Immediate	Technical	Deliberative	Dialectic	Transpersonal
Emphasis	Pleasant survival	Development of effective and efficient instructional methodologies	Discovery, assignment and assessment of personal meaning within the institution	Political liberation	Universal personal liberation
Operation	Works within the structures of the institute Accepts the status-quo	Works comfortably within authorised structures Accepts institutionally determined content and ends	Uncomfortable working within authorised structures Accept ends but negotiate content	Uncomfortable working within authorised structures Reject their limitations Question educational ends, content and means	Accept working within structures (in order to change them) Resist imposed constraints of authorised organisational structures and parameters
Focus	Immediate demands	Classroom unit	Beyond the classroom to discover personal relevance	Outward directed on political and social issues Advocate political awareness and activism	Inner-directed. Focus on self-development and on relationship of internal to external. Question educational ends, content and means from a personal, inner perspective.
Pedagogy	Eclectic but shallow Any appropriate method No consideration of alternatives or theoretical basis	Emphasises behaviour techniques Diagnostic prescriptive	Humanistic and stresses effective communication Explores alternative teaching strategies that are responsive and contextually sensitive	Continual questioning, revision and validation Stresses empowerment and personal responsibility. Is contextually sensitive and responsive	Typically, individualized and holistic Emphasis on eastern thought may lead to an often confusing but effective non-pedagogy (Khrishnamurti, 1974)

Level of Reflection	Habitual Action	Thoughtful Action	Content Reflection	Process Reflection	Premise Reflection
Artifacts	Reports on events based on memory of associated activities, thoughts and feelings	Faithful execution of preconceived methodology Correctness within a small area	Reflects underlying notions of meaning brings tacit assumptions to the fore	Considers issues of cultural replication and social repression. Grapple with practical ways to create justice and equity in both educational and political arenas. Learning occurs in a dialectic of mutual enquiry and may be confrontational. Consensus is important	Reflect the transpersonal orientation and is introspective and often highly personal.
Questions	How can I make the day pleasant for myself and my students	How can I achieve my goals What are the most efficient and effective teaching techniques to transmit information to students?	How can I make learning more meaningful and relevant to my students	In what ways do institutions replicate the status quo G=How can we re-design institutions on more democratic principles? How can I help students to liberate themselves from cultural oppression?	How can I integrate my personal/spiritual growth with my vocation? What is my personal responsibility to myself and others?
Evaluation	Superficial pedagogy presenting clever activities for teaching	Empirical-analytical science Quantitative methodologies to measure performance Linking teaching behaviours to learning outcomes.	Phenomenological-hermeneutic traditions Applied research, action science	Critical-historical social science theory Employs economic and historical methods Emphasises moral and ethical aspects of education. Advocate political methodologies and call to action.	Depth psychology and spiritual teachings. Knowledge is subjective and internal. Validity relies on resonance with experience.

Table XII.3 Orientations to Reflective Teaching Practice (adapted from Wellington and Austin, 1996, 309-310)

XII.1.iv Tips for teaching reflection (Aronson, 2011, 200–204)

Tip		
Tip 1	Define reflection	"Reflection appear to most as a self-evident concept, yet it helps to point out to students the different levels of reflections, even if they may not use them in practice"
Tip 2	Learning goals	"Exercises need to be thoughtful as to elicit the required behaviour and/or responses from students (as action leads to reflection end then to reconceptualization), and not merely as an afterthought"
Tip 3	Instructional Method	"Selecting the most appropriate means for reflection, i.e. written, voice, video, blogs etc. as each tool may be more suitable depending on the task or activity"
Tip 4	Structure	"Decide whether you will use a structured or unstructured approach and create a prompt: The risk is great that unstructured reflection or unreflective educators may result in unreflective reflections. To be cautious one should at the least provide feedback (prompts) on reflection that allows students to identify their distortions".
Tip 5	Ethical Concerns	"Even though reflections are not formal therapy it is likely that students may make revealing disclosures. Educators need to be prepared in how to deal with such sensitive information beforehand, and what type of consent one requires in order to share such information"
Tip 6	Follow up	"Reflection is iterative and allowance should be made for learners to learn from their actions and reflections, either through follow-up exercises or prompts to reflect on learning experiences".
Tip 7	Learning environment	"An authentic learning environment needs to be created where learners feel supported to reflect honestly, as well as know who will have access to their reflections, who will have access to them and how they will be assessed".
Tip 8	Teach reflection	"Educators need to guide learners in their reflections, especially to consider aspects such as the level of criticality, temporality (past, present and future), integrating emotions and experiences and reframing them".
Tip 9	Feedback	"Feedback (peer, group, and faculty) is necessary in order to provide students with an alternative perspective on their reflections, evaluating reflections also stresses the importance that faculty place on them"
Tip 10	Assessment	"Assessment and feedback can be separate. Reflections can be used for formative and summative assessments. Decisions need to be made in terms of grading and advancement options".
Tip 11	Incorporate in curriculum	"Reflections need to be part of an ongoing program as it requires development over a period of time. Can also be used for post-qualification re-certification".
Tip 12	Reflexive	"Practice the skills you are teaching". Reflections are formative and allow faculty a way to lead by example, through reflecting before, during and after teaching i.e. if faculty teach a structure, they should also use it themselves"

Table XII.4 Twelve tips for educators to teach or implement reflection in the classroom (Aronson, 2011, 200–204)

XII.1.v Active Learning Approaches

Approach	Definition
Research-Based Learning (RBL)	Research-based learning "contains many activities in which students actually conduct research (for example, projects); these activities are based on authentic processes of inquiry (they are connected to the research of the institute); the division of roles between academic staff and student is minimised" (Elsen et al., 2009).
Research-Tutored Learning (RTL)	Research Informed learning means the curriculum is "designed and constantly adapted on the basis of results of systematic inquiry into the teaching and learning process itself. In this mode, the 'scholarship of teaching' refers to teachers who are actively involved in designing and researching their own courses (Boyer, 1997). Unlike the other three, this model focuses on educational research rather than disciplinary research" (Elsen et al., 2009).
Research-Oriented (ROL)	Research-Oriented research is "an emphasis on understanding the processes by which knowledge is produced in the field as much as on learning subject content; teaching focuses on inquiry skills and on acquiring a 'research ethos'" (Elsen et al., 2009).
Research-Led (RLL)	learning is "This means that the content is selected on the basis of research interests of academic staff; teaching is mostly traditional, focusing on the transmission of information and emphasising the understanding of research findings rather than research processes" (Elsen et al., 2009)
Collaborative Learning (CL)	"... a coordinated, synchronous activity that is the result of a continued attempt to construct and maintain a shared conception of a problem" (Rochelle and Teasley, 1995, 70) in (Dillenbourg, 1999:70).
Case-based learning (CBL)	"In CBL small groups, the group focuses on creative problem solving, with some advance preparation" (Srinivasan et al., 2007:74).
Inquiry-Based Learning (IBL)	"cluster of student-centred approaches to learning and teaching which are driven by inquiry or research" (Levy, Little, McKinney, Nibbs, and Wood, 2010, 6) in (in Rakrouki et al., 2017:2)
Problem-Based Learning (PBL)	"PBL (is) an educational tool to enhance learning as a relevant and practical experience, to hone students' problem solving skills and to promote students' independent learning skills" (Eng, 2000).
Experiential Learning (EL)	Experiential Learning is "the process whereby knowledge is created through the transformation of experience. Knowledge results from the combi- nation of grasping and transforming experience" (Kolb, 1984, 41).
Authentic Learning (AL)	"Authentic learning typically focuses on real-world, complex problems and their solutions, using role-playing exercises, problem-based activities, case studies, and participation in virtual communities of practice" (Lombardi, 2007)
Action-Learning (AL)	Action learning is a system of problem-posing questions that aim to solve a particular organisational problem. (Revans, 1982b:66)
Action Research (AR)	"Action research is a critical and self-critical process aimed at animating these transformations through individual and collective self-transformation: transformation of our practices, transformation of the way we understand our practices, and transformation of the conditions that enable and constrain our practice." (Kemmis, 2009:463)

Table XII.5 Definitions for active learning approaches

XII.1.vi Active Learning Approaches Matrix

Approach	LBL [179]	BLL [180]	CBL	COL [181]	EXL [182]	PBL [183]	AUL [184]	IBL [185]	RBL [186]
Adult-oriented						X			X
Artefact							X		X
Collaborative				X			X		X
Contextual					X	X		X	X
Creative									X
Critical Thinking				X					
Explores current Knowledge	X	X	X	X				X	X
Group-based				X		X			X
Ill-defined problems						X	X		X
Communication				X					X
Inquiry based							X	X	X
Instructivist	X								
Interdisciplinary						X	X		X
Knowledge creating					X		X		X
Meaningful			X				X	X	X
Motivational			X			X	X		X
Multiple Perspectives							X		X
Outcomes-based	X	X							X
Practical				X		X			X
Problem-based						X			
Process-based				X	X				X
Project based						X	X		X
Real-world		X					X		X
Reasoning skills						X	X		X
Reflection							X		X
Research		X						X	X
Self-directed		X	X	X		X		X	X
Student-centred		X		X		X		X	X
Uses Technology		X							X
Transfer of Knowledge						X			X

Table XII.6 Active Learning Approaches matrix

[179] Lecture format from (Doucet et al., 1998)
[180] Technology-enhanced learning (Sharma and Hannafin, 2007)
[181] Collaborative Learning (Mentz and Goosen, 2007)
[182] Experiential Learning (EL) from (Kolb and Kolb, 2005)
[183] Problem-based Learning (PBL) from (Eng, 2000)
[184] Authentic Learning (AL) from (Lombardi, 2007)
[185] Inquiry-based learning (IBL) from (Rakrouki et al., 2017)
[186] Research-based learning (RBL) from (Brew, 2003)

XII.1.vii Curriculum action, knowledge and interest

Curriculum (Grundy, 1987)	Action Research (McKernan, 1996)	Cognitive Interest (Habermas, 1972)	Aristotle (Carr and Kemmis, 1986)	Medium (Habermas, 1984)	Teacher development (Stenhouse, 1975)	Knowledge Claim (Why)	Action (What)	Methodology (How)	Research Paradigm
Product	Scientific-technical (ST)	Technical	Theoretical (Episteme)	Work	Teacher Direction	Testable general explanations	Instrumental	Empirical-Analytical	Positivist
Practice	Practical-Deliberative (PD)	Practical	Productive (Poetike/Techne)	Language	Teacher Judgement	Cultural Understanding, Normative Analytic	Inter-Personal	Hermeneutic	Interpretivist
Praxis	Critical-Emancipatory (CE)	Emancipatory	Practical (Praxis/ Phronesis)	Power	Teacher Emancipation	Critique, Inquiry	Communicative, Reflective	Critical Reflection	Critical

Table XII.7 Curriculum Action, Knowledge and Interest (Carr and Kemmis, 1986; Grundy, 1987; Habermas, 1972; McKernan, 1996; Stenhouse, 1975)

XII.1.viii Taxonomy of Theory types in IS

Theory type	Distinguishing attributes
I. Analysis	*Says "what is".* The theory does not extend beyond analysis and description. No causal relationships among phenomena are specified and no predictions are made.
II. Explanation	*Says "what is", "how", "why", "when", "where".* The theory provides explanations but does not aim to predict with any precision. There are no testable propositions.
III. Prediction	*Says "what is" and "what will be".* The theory provides predictions and has testable propositions but does not have well-developed justificatory causal explanations.
IV. Explanation and prediction (EP)	*Says "what is", "how", "why", "when", "where" and "what will be".* Provides predictions and has both testable propositions and causal explanations.
V. Design and action	*Says "how to do something".* The theory gives explicit prescriptions (e.g., methods, techniques, principles of form and function) for constructing an artefact.

Table XII.8 Taxonomy of Theory Types in Information Systems Research (adapted from Gregor, 2006, p. 620)

XII.1.ix Contemporary theories using the elements of circumstances

Discipline	Reference	Application
Business Strategy (5Why's)	(Serrat, 2009).	"By repeatedly asking the question "Why" (five is a good rule of thumb), you can peel away the layers of symptoms which can lead to the root cause of a problem."
Drama/ Journalism	(Boeyink, 1992:113)	*"Who, What, Where, When, Why, How, and by What Means"*.
Dramatism, Habitus	(Goffman, 1963), (Burke, 1945:iv).	This comprised the Pentad of Act (What took place), Scene (What is the context?/Where is it happening), Agent (Who is involved or performed the act?), Agency (How was it done? By what means?) and Purpose (Why was it done? What do they want?).
Education (4MAT Lifecycle)	(Harb, Durrant and Terry, 1993; McCarthy and McCarthy, 2006).	What? (Concepts), How? (Skills), What if? (Adaption), Why? (Meaning).
Education Reflective Practice	(Race, 2002)	"As in the example above, questions which aid deep reflection are rarely single questions, but tend to form clusters. There is often a starter question which sets the agenda, and frequently is a 'what?' question. Then come the more important ones - the 'how?' questions and the 'why?' questions - and sometimes the '.... else?' questions which ask for even deeper thinking and reflection." (Race, 2002)
Education Peer-questioning	(King, 1993:32).	These questions range from 'What' questions i.e. "What is the main idea of…?" or "What if…?" or What is the meaning of…?" to 'How' questions of "Explain how…?", "How are…and…similar?" or "How would I use …to…?" and 'Why' questions such as "Explain why…?", "What is the best…and why?".
Education Curriculum Planning	(Schubert, 1986:15)	"What should the curriculum consist of", Why? Why? "To develop the mind and become acquainted with life's great ideas and questions" How? Great books, reading, contemplation, writing. Who? Who should have this kind of education? Who also refers to the teacher? Where should this education be pursued (Formal/schools When? Throughout life, but at particular time periods.
Education (Academic Plans)	(Lattuca and Stark, 2011).	"The *plan* included decisions about *what, why, and how* students learn; *ways* to determine whether students have learned what they are supposed to learn; and *methods* of using this information to improve the plan." (Stark and Lattuca, 1997:abstract)
Education (Action Learning)	(Marsick and Maltbia, 2006), (Revans, 1980)	Closed questions (Who? and What?), objective questions (How much or How many?), relative questions (Where and When?) and open questions (Why? and How?).
Enterprise Architecture Framework	(Zachman, 1987; Zachman, 1996),	What (Inventory), How (Process), Where (Distribution), Who (Responsibility), When Timing), Why (Motivation)

Discipline	Reference	Application
IS Formulating research questions	(Roode, 1993:7)	"What is? How does?, Why is? And How should" research, teaching or IS development be approached
IS: Contextual Aware IS Systems	Systems (Abowd et al., 1999),	Context, time, place
Moral Reasoning	(Aristotle, NE, 1111a15-20)	"Therefore it is not a pointless endeavor to divide these *circumstances* by kind and number; (1) the Who, (2) the What, (3) around what place (Where) or (4) in which time something happens (When), and sometimes (5) with what, such as an instrument (With), (6) for the sake of what (Why), (7) such as saving a life (Which), and (8) the (How), such as gently or violently" (Sloan, 2010)
Moral reasoning	(Kipling, 1902)	I keep six honest serving-men (They taught me all I knew); Their names are What and Why and When And How and Where and Who." (Kipling, 1902)
Moral Reasoning (Sexual)	(Gagnon and Simon, 2005)	
Moral Reasoning Casuistry	(Jonsen and Toulmin, 1988)	The *"who, what, when, where, why, how, and by what means"* of a particular case.
Moral reasoning Teleology	(Bellah et al., 2007:vii).	"*How* ought we to live? *How* do we think about how to live? *Who* are we, as Americans? *What* is our *character*? These are questions we have asked our fellow citizens in many parts of the country (*Where*)"
Phronetic Social Science	(Flyvberg, 2001)	Phronetic research focusses on the dynamic question, '*How*?' in addition to the more structural (question) '*Why*?'" "'*How?*' is thus added to '*Who?*', '*What?* And '*Where?*'"
Planning SMART Objectives	(SMART criteria Wikipedia, 2017).	*"What* exactly do I want to achieve? *Where? How?*, *When?*, With *whom?*, What are the conditions and limitations?, *Why* exactly do I want to reach this goal? What are possible alternative ways of achieving the same?"
Planning Time management (GTD)	TSW Evernote.	What, When, Where, Who
Software Testing	(Bertolino, 2007)	"Why, How, How much, What, Where, When
Theoretical Contributions	(Whetten, 1989 494-5)	What, How, Why, Who, Where, When
Theories in IS	(Gregor, 2006)	Says "what is", "how", "why", "when", "where" and "what will be".
Theory of actual use o	(Maheshwaree, 2009)	Context, time, place

Table XII.9 Contemporary theories and frameworks based on Aristotle's elements of circumstances

XII.1.x What constitutes a theoretical contribution

	Element	Description	Criteria	Contribution
Domain or Subject	What	"*Which* factors (variable, constructs, concepts) logically should be considered as part of the explanation"	Comprehensiveness (right factors) Parsimony (only relevant factors)	"Possible to make a theoretical contribution by adding or subtracting factors" "Seldom satisfies reviewers." "Need to show how these additions or subtractions affect the relationships between factors."
	How	"How are they related?" This shows patterns and links.	Showing patterns (boxes) and links (causality)	
Reason	Why	"What are the underlying psychological, economic, or social dynamics that justify the selection of factors and proposed causal relationships?	Logic Soundness of views on the issues	"Most fruitful and most difficult" "Often borrows a perspective from other fields" challenges our views on issues
Context	Who, Where, When	"Places limitations on the propositions generated from a theoretical model"	Temporal and contextual factors sets the boundaries of generalizability Constitutes the range of theory.	Pointing out limitations in the range of application is insufficient. Need to understand 'Why' this anomaly exist, so that they can revise the How and What of the model"

Table XII.10 What constitutes a theoretical contribution (Whetten, 1989 490-493)

XII.2 Supporting Materials

XII.2.i Research Questions

#	Question	Date	Source	Answer
RQ0	How does one learn to teach oneself in higher education?	2/2011	Prior to diary. Teaching workshop.	*Chapter IV* Learning how to teach
RQ1	How can I get students to participate in class?	2/2011	Prior to reflective diary. Discussion with Prof. ON.	*VIII.5.iv Giving students a voice*
RQ2	How can I teach students to be critically reflective?	4/2011	Prior to reflective diary. Discussion with Prof. ON	*VIII.4 Teaching critical reflection*
RQ3	How can I make research fun for the students?	5/2011	Methodology	*VII.4 Research curriculum*
RQ4	How do I teach students to conduct research of their own?	11/9/2012	Reflective Practicum	*VIII.2 My teaching*
RQ4a	How do I get students to continue with research?	5/2012	IFS722.2012.Reflection	*VIII.3.iv Approach to understanding*
RQ4b	How do I teach students to be creative?	1/10/2012	Reflection on MCQs	*VIII.3.iv Approach to understanding*
RQ4c	How do I get students to do original work?	29/1/2013	Originality	*VII.3.7 Plagiarism assignment*
RQ5	How do I teach students to teach themselves?	21/2/2013	Reflection	*VIII.3 Directing learning*
RQ5a	How does one lead or support or guide the students at this stage where they are becoming more independent.	18/3/2013	Learning to teach	*VIII.3.ii Guiding students*
RQ5b	So how does one learn or teach self-assessment?	18/3/2013	Learning to teach	*VIII.5.iii Students' views*
RQ5c	The question I have been thinking about is, if one trains for independence, does one reach a stage where the coach is not needed anymore?	18/3/2013	Learning to teach	*VIII.5.v Performance*
RQ6	So what does it mean to teach?	18/3/2013	Learning to teach	*VIII.2 My teaching*
	Future questions			
RQ6	What conditions are necessary to implement such a practice?			
RQ7	At what age can one start with this approach?			
RQ8	How would such a curriculum look?			

Table XII.11 Research questions, date formulated, Source and answer

XII.2.ii Research Ethics Design

Ethical Concern	Design Aspects
Conflict of Interest	The research was conducted as a part-time student at UCT and as a part-time academic at SAU. Both parties were cognisant of my part-time roles. The project was self-funded. My interest in the research was to improve my teaching practice and my interest in teaching was to improve teaching practices in general through contributing to research.
Permission	Ethical clearance to conduct this study was obtained from the UCT Ethics in Research Committee Permission was obtained from the HoD of the Department of Information Systems at SAU. Ethics clearance for the students to conduct their research was obtained from SAU Ethics Board.
Filming or recording	No filming or recording was done for the purposes of this dissertation, except for the use of a voice recorder to record personal memos for my own use.
Confidentiality	The student reflections were anonymised and stored in a private Dropbox and NVivo which is only accessible to the researcher and possibly the reviewers.
Anonymity	Students were provided with the option to remain anonymous or to retain their full names on their work. Although most of the students gave permission for the full disclosure of their name, I chose to record and use the case number as well as the students' initials instead in order to preserve anonymity and maintain conventions of using students work in research. Only the students themselves would be able to identify their initials and/or their reflections in this dissertation.
Informed Consent	Students were given a consent form to complete at the start of the course[187], as well as a disclosure page in the template that was provided to them for documenting their reflections[188]. The signed consent forms are attached on the accompanying CD.
Minors	All students that were involved in study were over the age of 18.
Authorship	Joint research papers that were developed with my students were published under all the students' names concerned[189]. Any future publications that include the research report of students will also be published jointly by gaining individual permission. Students provided the right to use the research data that was gathered by them in the MTESA project. All contributions made by the students and other academics and administrators during this research process will be acknowledged. Any articles that are developed from this study will be co-authored with my supervisor.
Plagiarism	All attempts have been made to trace the origin of any quotes or references and where not possible the secondary reference was used. All such references have been cited appropriately. Any student reflections were used verbatim with minor spelling and grammar corrections. All research material (books and articles) was obtained either through UCT, SAU or my current institution for fair use. Copies of

[187] See XII.2.iii Informed consent form.
[188] See XII.2.iv Informed consent for research assignments.
[189] See Uys et al. (Uys et al., 2012).

Ethical Concern	Design Aspects
	articles where permitted were made for the purposes of making notes on them.
Academic Integrity/ Honesty	No data in this dissertation were fabricated or falsified in order to represent or obscure a particular point of view. This dissertation represents an honest view as to the events that transpired during this research, as well as the analysis of the reflections included.
Research Conduct	Although the students are in a subordinate relationship to the lecturer, students were given the option to participate in the group research projects or to conduct research on their own. Furthermore students were given the option to include their reflections as part of my PhD analysis as well as for presentations or publications or in my course portfolio or as example for later students.
Do no-harm	The research was aimed at improving the students' lives as a result of my teaching. Therefore it can be considered mainly beneficial. No quotes were used that might represent either the students or the institution in a way that may harm them or that is not true.
Peer-review	This dissertation is made available for examination and other peer review processes prior to its publication, and as such is subject to non-disclosure and non-use principles until it is available in the public domain and cited appropriately.

Table XII.12 Research Ethics Design

XII.2.iii Informed consent form

Dear Student

RE:FLEC:TIONS IN INFORMATION SYSTEMS

As part of my teaching approach, I use reflection in the curriculum in order to aid both students to gain an improved understanding of their learnings, as well as for myself to improve my teaching practices.

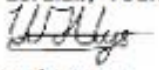
> *"For the reconstruction of institutions and social structure may induce subjects to reflect upon the circumstances in which they act; and such reflection may enable subjects to grasp, not so much the effort to exist, but rather those conditions of their existence which had hitherto remained opaque" (Thompson, 1984, p. 180)*

All the learning's that I have made through my teaching at SAU may be published as a series of papers, and is a part of my research conducted towards my PhD. You are hereby invited to include your assignments and reflections that you have done as part of your course.

Your participation is entirely voluntary and will not affect your marks for your assignments and reflections in any way. Your identity will be kept confidential, and just a first name or pseudonym will be used in the study should it be necessary to establish ownership of quotes.

Please indicate your willingness for me to use your assignments and reflections in my research, and whether I may use your name in my study/papers by signing the attached form or by sending me an email in this regard. Should you wish to withdraw your permission at any time during this study, you are welcome to notify me of your wishes at the above email.

Cordially Yours



Walter Uys

Student Signature	Name and Surname	Student Number

XII.2.iv Informed consent for research assignments

_X___I am willing to provide the research and data that I did for the IFS352/MTESA research assignment (SAU Ethics Approval 12/10/2) for further data analysis and publication.

_X___I am willing to have copies or extracts of my assignments available as an example for later students.

_X___I am willing to have copies or extracts of my assignments included in my lecturers' course portfolio.

_X___I am willing to have copies or extracts of my coursework included in my lecturers PhD, public presentations or publications.

Please check one of the following:

_X___I wish to have my name remain on any work that is used.

_____I wish to remain anonymous/pseudonym on any work that is used.

Additional restrictions on the use of my assignments/texts (please specify):

_____

_____

_____

By signing below, you give your permission that work that you produced for this module may be used, based on the restrictions and for the purposes that you indicated above. Finally, you understand that you are free to withdraw your permission at any time.

XII.2.v Course descriptor

Home Department	INFORMATION SYSTEMS
Module Topic	IFS PHILOSOPHY AND RESEARCH METHODS
Generic Module Name	IFS PHILOSOPHY AND RESEARCH METHODS
Alpha-numeric code	IFS 352 (1ST semester)
Credit Value	30
Duration	SEMESTER
Level	7
Main Outcomes	At the end of this module the student should be able to: • Understand different paradigms within IS. • perceive and understand how IS as a discipline forms part of a set of interrelated cultural, social, political and other systems. • understand the origins of the information age. • understand the philosophical principles of academic writing and publishing in IFS, and be able to apply them. • Understand the ethical issues raised during eh process of conducting research • understand the nature and progress of scientific enquiry, and its application to IFS • Have knowledge of various research methods used in IFS research. • Be able to find and evaluate information critically for research purposes • Be able to write a research proposal. • Be able to interpret and use research output in IFS
Main Content	• IFS from a philosophical perspective. • This module is a prerequisite for the full-time Honours in IFS. • Introduction to research methods in IFS. • This module is a prerequisite for the Honours in IFS.
Pre-requisites	Registered for BCom (IFS) and pass requirement (SVK) for any two 2nd-year IFS modules.
Co-requisites	None
Prohibited Combinations	None
Breakdown of Learning Time	**Hours**
Contact with lecturer/tutor	48
Assignment & tasks:	112
Tests & Examination	12
Practicals:	28
Self-study:	100
Total Learning Time	**300**
Methods of Student Assessment	60% - Tests, assignments, tutorials. 40% - Final Assessment

Table XII.13 Course Descriptor (IFS352)

XII.2.vi SAU EMS graduate attributes

At the end of the undergraduate degree, EMS graduates should be able to:	
1. Inquiry-focused and knowledgeable	"Conduct research by obtaining, analysing and presenting relevant data / information from different sources"
2. Critically and relevantly literate	"Critically apply quantitative and qualitative skills when understanding and interpreting information"
3. Autonomous and collaborative	"Have the ability to work independently and in teams, as well as be flexible and emotionally astute when dealing with challenges"
4. Ethically, environmentally and socially aware and active	"Work ethically and display integrity and maturity. They should also demonstrate an awareness of social, cultural and environmental issues relating to their disciplines and make professional and leadership decisions in accordance with these principles"
5. Skilled communicators	"Effectively communicate through oral and written presentations in a range of contexts, and should view communication as a tool to negotiate and articulate new understandings"
6. Interpersonal flexibility and confidence to engage across difference	"Demonstrate teamwork ability by showing initiative, trust and sensitivity towards team members from diverse backgrounds. They should be able to understand, support, motivate, develop and enthuse others while maintaining a positive attitude"

Table XII.14 SAU EMS Graduate Attributes

XII.2.vii Student module evaluation form

Economic Management and Sciences Faculty
(Shortened) Undergraduate Module Evaluation Form

D D M M Y Y

Name of lecturer

Module name and number:

Please answer the questions truthfully. Your responses will be used to improve the level of teaching and learning in the faculty. On the **multiple-choice answer form** provided, use a pencil or dark pen to fill in or draw a cross in the circle that applies to each question below. Use the scale below to rate each of your answers:

A = strongly agree	**B** = agree	**C** = neutral; don't agree or disagree	**D** = disagree	**E** = strongly disagree

THE LECTURER

1. The lecturer starts class on time.
2. The lecturer was usually well prepared for class.
3. The lecturer was able to maintain discipline in the class.
4. The lecturer's voice was clear and understandable.
5. The lecturer demonstrated good knowledge of the taught material.
6. The lecturer actively encouraged students to participate in class.
7. The lecturer was able to simplify difficult material.
8. The lecturer was available during stated consultation hours.
9. The lecturer used different kinds of teaching techniques (overhead transparencies, power point presentations) in a way that enhanced the learning experience.
10. The lecturer used e-learning/e-teaching in ways that enhanced the learning experience.

STUDENT INVOLVEMENT in LEARNING

11. Before lectures, I complete the prescribed readings or exercises in preparation for the lecture.
12. I felt free to ask the lecturer questions in class.
13. After lectures, I read over and reviewed my lecture notes / exercises covered in class.
14. If I am unclear about the work, I consult with my lecturer or tutor.
15. I plan my work and avoid studying for tests or completing assignments at the last minute.

ASSESSMENT ACTIVITIES

16. Assessment tasks were directly relevant to the material taught in class.
17. All assessment tasks included clear assessment criteria that indicated how the tasks would be graded.
18. Assessment tasks required an in-depth understanding of the subject, rather than rote memorisation.
19. The lecturer was a fair and an impartial judge of tests and assignments.
20. The lecturer returned test scripts and assignments within two weeks after the due dates.
21. The lecturer regularly posted our assignment marks on the notice-board, and not just before the CAM due date.
22. The lecturer gave me sufficient feedback that enabled me to deepen my understanding of the work.

TUTORIAL PROGRAMME (Only respond if applicable)

23. The tutorial helped me to apply the knowledge I learned in the lecture.
24. The tutor was able to maintain discipline in the class.
25. The tutor's voice was clear and understandable.
26. The tutorial enhanced my understanding of the module / course.
27. The tutor was well prepared.

Thank you for completing the questionnaire. 14-10-09

XII.2.viii ETEA Nomination

EMS TEACHING EXCELLENCE AWARDS

NOMINATION FORM

Name and Title of Nominee:

Mr Walter Uys

Award category applied for:

Teacher of the Year Award

School/Department of Nominee:

Department of Information Systems

Motivation:

With the emphasis on research output in South Africa, lecturers that invest significantly in teaching and learning are quite rare. Mr Uys is one of those rare lecturers that invest an equal amount of time in his research and his teaching and learning. Moreover, I have noticed an unparalleled devotion to and love for UWC students, and in particular the IS students. I believe it is this attitude that makes the difference in his classes and also made him walk the proverbial second (and even third) mile and inspired him to invest many extra hours in the students on and off-campus. As I do, he firmly believes that our students have the ability to compete with the best in the world, but are limited by their scholastic background and general environment, resulting in a flawed self image and self confidence. If given the opportunity by a lecturer that are willing to invest time and effort in them, they excel and even surpass all expectations.

This above mind-set of Mr Uys also influenced his teaching (or rather learning) philosophy. Through a critical pedagogical approach he has assisted students to develop their imagination, abilities and self-image, as well as to broaden their knowledge in becoming the leaders of tomorrow. In particular he made extensive use of the reflective approach and constant feedback.

Using the above approach and techniques Mr Uys made a huge success of the two classes that he taught:

- ***Research methods** (third year group): Except from revamping the course and introducing many innovative ways of teaching/learning, he succeeded in getting the students excited about research, the various research theories, approaches and methodologies. He even formed a research group (of third year students!!) that did some significant research on mobile phone use and jointly wrote a paper that was excepted at the ISTAfrica conference in Tanzania in May 2012. Mr Uys*

and one of the students will be presenting the paper at Kunduchi Beach, Tanzania. Certainly a first by third year students of the IS Dept.

- ***IS consulting** (third year group): Again the course was modernised and a practical approach was followed by forming a consultation group under the lead of one of the students. All students were given real-life consultation assignments and made a huge success of it, leading to many compliments from industry.*

In both these courses the students excelled more than expected and the evaluations were extremely positive and reflected the personal growth of each individual student.

I thus recommend Mr Uys for the teaching excellence award with my whole heart. He has really made a difference to our students.

Name, Title of and Department/School of nominator:

Prof , HOD, Department of Information Systems

Submission Date: *1 April 2012*

Submit to this email address:

XII.2.ix IFS352 Final course outline

FINAL COURSE OUTLINE 2013: IFS 352 PHILOSOPHY AND RESEARCH

Main Content
IFS from a philosophical perspective. This module is a prerequisite for the full-time Honours.
Introduction to research methods in IFS. This module is a prerequisite for the Honours in IFS.

Main Outcomes (Official outcomes from course descriptor).
At the end of this module the student should be able to:
Understand different paradigms within IS.
Perceive and understand how IS as a discipline forms part of a set of
Interrelated cultural, social, political and other systems.
Understand the origins of the information age.
Understand the philosophical principles of academic writing and
Publishing in IFS and be able to apply them.
Understand the ethical issues raised during the process of conducting research
Understand the nature and progress of scientific enquiry, and its application to IFS
Have knowledge of various research methods used in IFS research.
Be able to find and evaluate information critically for research purposes
Be able to conduct research.
Be able to interpret and use research output in IFS

1st Quarter Research Philosophy
The first quarter of the semester is devoted to an introductory treatment of Research Philosophy and the research topic for the semester:
Week 1 - Course Introduction (31 Jan)
Content: Introduction to Tutors, Ground Rules, Knowledge consumption vs Knowledge Production
In Class Assignment: Personal Introduction and Course Expectations (5%)
Media: Trevor Noah: Daywalker
Week 2 – IS Philosophy and Research (7 Feb)
Content: Definition of the term "Philosophy", Understanding the research context.
Course Reading: IS Philosophy Article Reading: Nicholas Carr: Is Google making us stupid. (Study for spot test 1)
In Class Assignment: Student Life at SAU
Media: YouTube Clip: Death of HAL 2000 (From above article)
Week 3 – Research Methodologies (14 Feb)
Content: IS Research methodologies, Surveys, Questionnaires, Interviews, Case Studies, Grounded Theory, Action Research, Diversity Sensitivity. Research concepts of Language, Age, Culture, Gender etc. Self-Identity concepts, Society and Norms, Research Methods. Quantitative and Qualitative, Research Methodology
Class Activity: Action Research and Socialization(Practical Grouping of students)
Media: YouTube Clip: Michael Jackson: Black & White
Week 4 – Tutorial (21 Feb)
Introduction to Assignment 1: Literature Review, Plagiarism and Ethics
Tutorial: Conducting a Literature Review
Course reading: IS Research Article: Levy & Ellis 2007. A Systems Approach to Conducting a Literature Review in Information Systems. (Study for Spot Test 2)

Additional Reading:
Assignment 1: Conducting a Literature Review on Technology in Education (Due Date 4 March 2012)

Week 5 – Conducting a Literature Review in IS (28 Feb)

Guest Lecturer. Zona Koen. Digital Literacy and Accessing the SAU databases
Content: Using online databases and the Library resources (Ebsco, JStor, ACM), Academic Writing, Publishing in IS, Research Ethical issues, Plagiarism and Referencing.
Tutorial: Accessing Library databases and downloading articles.
Course Reading: Download Uys et. al. 2012. Smartphone usage amongst Students at a South African University. (Spot Test 3)
Handout: Harvard referencing
Research Technology Introduction: Mendeley for Referencing, Turnitin for Plagiarism

Week 6 – Research Topic (7 Mar)

Content: Introduction to topic Mobile Technology in Education in Southern Africa. (From Lit Review & Article), Technology, Education
Feedback on Literature Review
Media: YouTube. Pink Floyd The Wall
Activity: Research Group Allocation
Assignment 2: Individual article summary and group synthesis: Topic: Banning of cellphones in schools. (Due 4 April)
Individual Assignment: Research Diary

Week 7 – Critical Reasoning (14 Mar)

Content: IS as a Scientific Discipline, Origins of the Information Age, Nature and progress of Scientific Enquiry and its relation to IS. Critique of reason (Kant)
Course reading: Godfrey Smith. Theory and reality. An introduction to the Philosophy of Science. Chapter 1 & 2
Media: George Carlin. Brain Droppings

Week 7 – Academic Writing (28 Mar)

Content: Academic Writing concepts, Summaries, Synthesis and Literature Review. Perspectives from Academia and Industry
Popper – Conjecture and Refutation
Media: YouTube Clip. Writing a Synthesis
Technology: Cloud Services (Dropbox, Google Docs)

Week 8 – Social Science and Philosophy (4 April)

Content: Social Science, Politics, Education, Media, Technology, African Philosophies (Ubuntu, Neighbourliness), Social Constructivism, Relativism, Existentialism, Dictatorships
Media: YouTube: Milgram Experiment
Course Reading: Orlikowski & Baroudi. 1992. Studying IT in Organisations.
Technology: Facebook, Twitter, Linked-In for marketing/promotion

Week 9 – Theory Development (11 April)

Content: Paradigms (Positivism, Interpretivism, Critical Theory), Theory ladenness of Observation, Theory development, Theory Testing, Theory and Practice (Aristotle/Habermas), Induction, Deduction, Abduction & Retroduction, IS Theories, Theory of Planned Behaviour, Theory of Reasoned Action, Technology Adoption Model, Activity Theory
Course Reading: Horace Miner's (1956) Body Rituals of the Nacirema
Group Assignment: Literature Review on Topics Allocated

Week 10 – Thesis Statements (18 April)

Content: Thesis statement, Hypothesis, Propositions, Questions, Organizational

Structure, Frameworks, Mintzberg, Questionnaire Design
Tutorial. Questionnaire Design.
Course Reading: Uys et al from a Methodology/questionnaire perspective.

Week 11 – Exam Assignment (25 April)

Content: Outline exam assignment and scope. Mobile Technology in Higher Education. Questionnaire, Prizes/Sponsorship, Survey Event, Posters, Media
Assignment: Group Literature Review Due.

Week 12 – Survey (2 May)

Content: Questionnaire Testing, Marketing, Prizes, Sponsorships, Academic Performance
Activity: Conduct Survey on Campus

Week 13 – Data Capturing (9 May)

Google Docs Capturing, Data Validation (Dropdowns)
Activity. Capture Data on Google Docs Spreadsheet (Due 16 May)
Tutorial: Consultation on Exam Assignment

Week 14 – Data Analysis (16 May)

Content: Introduction to qualitative and quantitative data analysis, variable types, measures of dispersion, descriptive & inferential statistics types and Multivariate Analysis such as Manova, Interpretive Data Analysis (Diary), Critical Thinking (Due 23 May)

Week 15 – Closing (23 May)

Content: Last class of the semester, Consultation on Individual Assignment

Evaluation/Assessment

IFS 352 is a continuous assessment module, and students are assessed on the basis of two individual written assignments of 5 percent each, two literature reviews (One individual and 1 group) (10% each), spot tests (20%), a written research project of 40 percent, class attendance and participation of 10 percent.

Assignments

Written Assignment 1. Personal Introduction and Course Expectations (In Class) 5%

Written Assignment 1. Social Context (In Class) 5%

Literature Review (Individual). Technology in Education (10%)

Literature Review (Group). Mobile Technology in Education, IS Theories (10%)

Class spot tests. Topics are based on the articles indicated during the course. (Total of 20%)

Participation/Attendence. Registers will be kept during classes (10%)

Exam Assignment : Group and Individual Research on Mobile Technology in Education (40%)

Course Readings

Nicholas Carr: Is Google making us stupid. (Study for spot test 1)
Levy & Ellis 2007. A Systems Approach to Conducting a Literature Review in Information Systems. (Study for Spot Test 2)
Uys et. al. 2012. Smartphone usage amongst Students at a South African University. (Spot Test 3)
Orlikowski & Baroudi. 1991. Studying IT in Organisations. Reseaarch Approaches and Assumptions

Recommended Books

Sekaran, U. Research methods for Business. A Skills Building Approach. ($4^{th}/5^{th}$)

Godfrey Smith. Theory and reality. An introduction to the Philosophy of Science. Chapter 1 & 2

XII.2.x Overview of the Research Methods Course

Theories in IS	Topics in IS (Y2)
• Activity Theory • Actor Network Theory • Adaptive Structuration Theory • Argumentation Theory • Critical Social Theory • Delone & McLean IS Success • Diffusion of Innovation Theory • Feminism Theory • Grounded Theory • Hermeneutics • Theory of Planned Behaviour • Unified Theory of acceptance and use of technology • Social Constructionist Theory. **Methods in IS** • Grounded Theory • Experiments • Prototyping (Design Science) • Ethnography • Interview • Questionnaire • Case Study • Epistemology • Ontology • Methodologies • Positivistic Research • Interpretive Research • Critical Research • Longitudinal studies • Empirical Observation • Action Research • Statistical Analysis **Topics in IS (Y1 & Y3)** • Smartphone usage amongst students at a SA University **Collaboration** • Faculty Librarian • Writing Centre • Faculty (to supervise a group) • Postgraduate Students	• The effects of mobile phone usage amongst teens in SA • Empirical observation of student life • E-Tolling: Financial impacts • Eye-tracking while driving and using a mobile phone • Financial impact of cell phone usage amongst students • Gaming compulsion • Living Labs in SA • Interpretive analysis of a current media topic • The termination of the Khanya ICT in schools project • Adoption of E-Teaching platform amongst academics. **ICT Tools** • Cloud Storage (Dropbox) • Reference Management (Mendeley) • Research Databases (Library and Scholar) **Disciplines** • Economics • Finance • Management • IS • Computer Science **MTESA Research Areas** • Theoretical framework (5 groups), • Costs of phones, data and airtime (2 groups), • categories of mobile apps (2 groups), • kinds of smartphone usage (2 groups), • places where they are used (2 groups), • demographical profiles of students (1 group), • marketing strategy (1 group), • management of project (1 group).

XII.3 Research Methodology

XII.3.i Discovery of Differences

Rule	Description	Ref
Greater degree	"if an increase in the predicate results in an increase in the subject of the same attribute, it is more likely to belong e.g. "if pleasure be good, see whether also a greater pleasure be a greater good: and if to do a wrong be evil, see whether also to do a greater wrong is a greater evil."	115a1-2
Lesser degree	"if the attribute can be predicated of two subjects, and it does not belong to the subject which it is more likely to belong, then neither does it belong to the subject where it is less likely to belong" (Top, 115a6-10). "Likewise also with the attributes i.e. if two predicates are attributed to one subject, and the one which is generally thought to be more likely to belong does not belong, then the attribute that is less likely to belong will also not belong. Conversely, if the one that is less likely to belong…does belong…then the one that is more likely to belong will also belong"	115a12-15
Like degree	"if an attribute is supposed to belong two subjects in a like degree, if it does not belong to the one subject, then neither does not belong to the other, and conversely too" (Top, 115a15-20). "This also applies if two predicates are considered to belong in a like degree to the same subject; therefore if the one does not belong then neither does the other; while if the one does belong then the other should also" (Top, 115a19-21). "This also applies to two predicates belonging in like manner to two subjects. For if the one does not belong to the one subject, neither does the remaining predicate belong to the other subject" (Top, 115a22-25).	115a22-25
By Addition	"The principle is that if an attribute improves the character of a subject in a certain way, then the attribute possesses that particular characteristic. This rule is not convertible however, for if an addition of a particular attribute does not change the subject, it does not clarify whether the particular character has an influence or not e.g. the addition of white to black does not make the whole black" (Top, 115b1-3).	115b1-3
Absolutely	"The principle is that if it is possible that an attribute belongs to a subject, then it is also possible absolutely to belong. The distinction is a fine one which can be illustrated as follows e.g. , a greater or lesser degree of good will not be attributed to something which is not good and vice-versa. This does not restrict attributes that are	115b7-10

	not of greater, like or lesser degrees from belonging absolutely…for these attributes are referred to as properties" (Top, 115b7-10).	
Relatively	"Relative attributes are attributes that belong 'temporarily' to a subject, such as a man is sitting or standing at a given time, in a given place etc. (Top, 102b5-8). The example that Aristotle uses, is that a person may be good natured at certain times, but that by nature, man is not good absolutely. Also, a destructible thing might be indestructible for a certain time, but not absolutely so" (Top, 115b9-15).	115b9-15

Table XII.15 Discovery of Differences (Top, 115a12-115b15)

XII.3.ii Judging Desirability

Category	#	Rule	Principle	Example	Ref
Nature	D5.2	By Nature	"what is good by nature is more desirable than the good that is not so by nature"	e. g. justice than the just man; for the one is good by nature, whereas in the other case the goodness is acquired.	116b10-12
Nature	D1.1	Durability	"that which is more lasting or secure is more desirable than that which is less so" (Top, 116a12)		116a12
Nature	D13.1	By Primacy	"if A be without qualification better than B, then also the best of the members of A is better than the best of the members of B"	"e. g. if man be better than Horse, then also the best man is better than the best horse"	117b33-35
Nature	D20	By Inflexion	"judge things by their inflexions and uses and actions and works, and judge these by them : for they go with each other"	"e. g. if 'justly' means something more desirable than 'courageously', then also justice means something more desirable than courage; and if justice be more desirable than courage, then also 'justly' means something more desirable than 'courageously'. Similarly, also in the other cases."	118a35-40
Genus	D1.2	Prudent/ Experts	"that which is more likely to be chosen by the prudent or by the good man or by the right law, or by men who are good in any particular line, when they make their choice as such, or by the experts in regard to any particular class of things"	e. g. in medicine or in carpentry those things are more desirable which most, or all, doctors would choose; or, in general, whatever most men or all men or all things would choose (Top, 116a17-18)	116a15-16

Category	#	Rule	Principle	Example	Ref
Genus	D11.1	Generically	“that what is nearer to the good (genus) is better and more desirable”	“i.e. what more nearly resembles the good: thus justice is better than a just man” (Top, 117b10-13	
Genus	D11.2	By Equivocation	“that which is more like than another thing to something better than itself”	“e. g. some say that Ajax was a better man than Odysseus because he was more like Achilles.”	117b12-15
Genus	D11.3	By Resemblance	“if one is more like the better thing while another is more like the worse, then that is likely to be better which is more like the better”	“e. g. supposing the resemblance of Ajax to Achilles to be slight, while that of Odysseus to Nestor is strong.”	117b20-25
Genus	D12.1	By Conspicuousness	“the more conspicuous good is more desirable than the less conspicuous”		
Genus	D12.2	By Difficulty	the more difficult (good is more desirable) than the easier”	“for we appreciate better the possession of things that cannot be easily acquired”	117b28-30
Genus	D2	By Genus	“that which is known as' an x' is more desirable than that which does not come within the genus 'x '”	e. g. justice than a just man; for the former falls within the genus ' good ', whereas the other does not, and the former is called 'a good', whereas the latter is not	116a23-24
Genus	D24.1	By Senses	“For what is useful for all or most of them may be taken to be more desirable than what is not useful in like manner. If the same characters belong to both things you should look and see which possesses them more markedly”	i.e. which of the two is the more pleasant or more honourable or more expedient.	118b28-30
Genus	D24.2	By Purpose	“that is more desirable which serves the better purpose”	e. g. that which serves to promote virtue more than that which serves to promote pleasure.	118b30-33
Genus	D24.3	By Objectionable	for that is more objectionable which stands more in the way of what is desirable”	“e. g. disease more than ugliness: for disease is a greater hindrance both to pleasure and to being good.”	118b34-35
Genus	D5.1	Absolutely	“what is good absolutely is more desirable than what is good for a particular person”	e.g. recovery of health than a surgical operation; for the former is good absolutely, the latter only for a particular person, viz. the man who needs an operation.	116b8-12
Species	D10.1	By Destruction	“for things whose destruction is more objectionable are themselves more desirable”		117b3-7
Species	D10.2	By Loss	“for a thing whose loss or whose contrary is more objectionable is itself more desirable.”		117b7-8

Category	#	Rule	Principle	Example	Ref
Species	D10.3	By Acquisition	"for things whose acquisition or generation is more desirable are themselves also desirable"		117b8-10
Species	D13.2	Primacy of species	"if the best in A be better than the best in B, then also A is better than B without qualification"	"e. g. if the best man be better than the best horse, then also Man is better than Horse without qualification."	117b35-37
Species	D14.1	Shareable	"things which our friends can share are more desirable than those they cannot"		118a1-3
Species	D14.2	Towards our friends	"things which we like rather to do to our friend are more desirable than those we like to do to the man in the street"	"e. g. just dealing (semblance of doing good) and the doing of good (to our friends) rather than the semblance of them (to the man on the street)"	118a2-6
Species	D15	Superfluities	superfluities are better than necessities, and are sometimes more desirable as well	"for the good life is better than mere life, and good life is a superfluity, whereas mere life itself is a necessity"	
Species	D16.1	Unobtainable	"what cannot be got from another is more desirable than what can be got from another as well"	(e. g.) is the case of justice compared with courage.	118a16-18
Species	D16.2	Incontrovertible	"A is more desirable if A is desirable without B, but not B without A"	power (e. g.) is not desirable without prudence, but prudence is desirable without power	118a18-20
Species	D16.3	By Repudiation	if of two things we repudiate the one in order to be thought to possess the other, then that one is more desirable which we wish to be thought to possess"	"(e. g.) we repudiate the love of hard work in order that people may think us geniuses" (Top, 118a24)	118a21-23
Species	D17	By Displeasure	"that is more desirable in whose absence it is less blameworthy for people to be vexed; and that is more desirable in whose absence it is more blameworthy for a man not to be vexed"		118a24-26
Species	D18	By Peculiarity	"of things that belong to the same species one which possesses the peculiar virtue of the species is more desirable than one which does not. If both possess it, then the one which possesses it in a greater degree is more desirable"		118a26-28
Species	D19	By Influence	"if one thing makes good whatever it touches, while another does not, the former is more desirable. If both do so, then that one is more desirable which does so in a greater degree, or if	"just as also what makes things warm is warmer than what does not" "(e. g.), the one makes good the soul, and the other the body."	118a30-34

Category	#	Rule	Principle	Example	Ref
			it render good the better and more important object"		
Species	D21.2	By Excess	"when the excess of a thing is more desirable than the excess of something else, that thing is itself also more desirable than the other"	"(e. g.) friendship than money: for an excess of friendship is more desirable than an excess of money"	118b5-8
Genus/ Property	D1.3	By Discipline	"the absolute standard is the verdict of the better science, though relatively to a given individual the standard may be his own particular science"		116a20-22
Property	D03.1	For Itself	"that which is desired for itself is more desirable than that which is desired for something else"	e. g. health is more desirable than gymnastics: for the former is desired for itself, the latter for something else.	116a29-30
Property	D03.2	By Purpose	"that which is desirable in itself is more desirable than what is desirable per accidens" (Top,)	e. g. justice in our friends than justice in our enemies	116a33-34
Property	D04	By Cause	"that which is in itself the cause of good is more desirable than what is so *per accidens*… Likewise also in the case of the contrary"	e. g. virtue than luck (for the former is in itself, and the latter *per accidens,* the cause of good things), and so in other cases of the same kind.	116b1-5
Property	D05.3	By Subject	"the attribute is more desirable which belongs to the better and more honourable subject"	e.g. to a god rather than to a man, and to the soul rather than to the body.	
Property	D05.4	By Property	"So too the property of the better thing is better than the property of the worse"	e. g. the property of God than the property of man: for whereas in respect of what is common in both of them they do not differ at all from each other, in respect of their properties the one surpasses the other.	116b14-15
Property	D05.5	Inherently	Also that is better which is inherent in things better or prior or more honourable	(e. g.) health is better than strength and beauty: for the former is inherent in the moist and the dry, and the hot and the cold, in fact in all the primary constituents of an animal, whereas the others are inherent in what is secondary, strength being a feature of the sinews and bones, while beauty is generally supposed to consist in a certain symmetry of the limbs.	116b18-19
Property	D05.6	The end	Also the end is generally supposed to be more desirable than the means, and of two means, that which lies nearer the end. In general, too, a	"e.g. that which contributes to happiness than that which contributes to prudence"	116b22-25

Category	#	Rule	Principle	Example	Ref
			means directed towards the end of life is more desirable than a means to anything else"		
Property	D05.7	Competence	"Also the competent is more desirable than the incompetent."	"Moreover, of two productive agents that one is more desirable whose end is better; while between a productive agent and an end we can decide by a proportional sum whenever the excess of the one end over the other is greater than that of the latter over its own productive means"	116b25-26
Property	D05.8	By Proportion	"between a productive agent and an end we can decide by a proportional sum whenever the excess of the one end over the other is greater than that of the latter over its own productive means"	"e. g. supposing the excess of happiness over health to be greater than that of health over what produces health, then what produces happiness is better than health. For what produces happiness exceeds what produces health just as much as happiness exceeds health. But health exceeds what produces health by a smaller amount; *ergo,* the excess of what produces happiness over what produces health is greater than that of health over what produces health. Clearly, therefore, what produces happiness is more desirable than health: for it exceeds the same standard by a greater amount."	116b28-32
Property	D06	Nobler	"what is in itself nobler and more precious and praiseworthy is more desirable than what is less so"	"e.g. friendship than wealth, and justice than strength. For the former belong in themselves to the class of things precious and praiseworthy, while the latter do so not in themselves but for something else: for no one prizes wealth for itself but always for something else, whereas we prize friendship for itself, even though nothing else is likely to come to us from it."	116b35-38
Property	D07.1	By Consequence	"the one which is followed by the greater good is the more desirable: or, if the consequences be evil, that is more desirable which is followed by the less evil. For though both may be desirable, yet there may possibly be some unpleasant consequence involved to turn the scale."		117a5-10

Category	#	Rule	Principle	Example	Ref
Property	D07.2	Earlier consequence	"Our *survey* from the *point of view* of consequences lies in two directions, for there are prior consequences and later consequences…the later consequence is the better to consider."	"e. g. if a man learns, it follows that (earlier) he was ignorant before and (later) knows afterwards"	117a11-15
Property	D08.1	By Quantity	"a greater number of good things is more desirable than a smaller, either absolutely or when the one is included in the other"		117a15-19
Property	D08.2	In Combination	"An objection may be raised suppose in some particular case the one is valued for the sake of the other; for then the two together are not more desirable than the one" (Top, 117a18-20)	"e. g. recovery of health, than health alone, inasmuch as we desire recovery of health for the sake of health."	
Property	D08.3	By Composition	"it is quite possible for what is not good, together with what is, to be more desirable than a greater number of good things"	"e. g. the combination of happiness and something else which is not good may be more desirable than the combination of justice and courage."	117a21-25
Property	D09.1	By Age/Season	"Also, everything is more desirable at the season (age) when it is of greater consequence"	"e. g. freedom from pain in old age more than in youth: for it is of greater consequence in old age." "e.g. prudence is more desirable in old age; for no man chooses the young to guide him, because he does not expect them to be prudent." "e.g. with courage, the converse is the case, for it is in youth that the active exercise of courage is more imperatively required. "E.g. likewise, also with temperance; for the young are more troubled by their passions than are their elders."	117a26-30
Property	D09.2	At Times	"that is more desirable which is more useful at every season or at most seasons (times)"	"e. g. justice and temperance rather than courage: for they are always useful, while courage is only useful at times"	117a35-36
Property	D09.3	By Entailment	"one of two things which if all possess, we do not need the other thing, is more desirable than that which all may possess and still we want the other one as well"	"e.g. Take the case of justice and courage; if everyone were just, there would be no use for courage, whereas all might be courageous, and still justice would be of use"	117a33-35
Property	D21.1	By Preference	"if one thing exceeds while the other falls short of the same standard of good, the one which exceeds is the more desirable; or if the one exceeds an even higher standard."	"if there be two things both preferable to something, the one which is more highly preferable to it is more desirable than the less highly preferable"	118b1-5

Category	#	Rule	Principle	Example	Ref
Property	D22.1	By Addition	"judge by means of an addition, and see if the addition of A to the same thing as B makes the whole more desirable than does the addition of B"	"(e. g.) if you took a saw and a sickle in combination with the art of carpentry: for in the combination the saw is a more desirable thing, but it is not a more desirable thing without qualification."	118b10-15
Property	D22.2	By improvement	"a thing is more desirable if, when added to a lesser good, it makes the whole a greater good"		118b16-17
Property	D22.3	By subtraction	"for the thing upon whose subtraction the remainder is a lesser good may be taken to be a greater good, whichever it be whose subtraction makes the remainder a lesser good"		118b18-20
Property	D23	By its looks	"if one thing be desirable for itself, and the other for the look of it, the former is more desirable"	"(e. g.) health than beauty…A thing is defined as being desired for the look of it if, supposing no one knew of it, you would not care to have it"	118b20-25
Property	D23.2	By Character and Looks	"it is more desirable if it be desirable both for itself and for the look of it, while the other thing is desirable on the one ground alone"		118b22-23
Property	D23.3	By Value	"whichever is the more precious for itself, is also better and more desirable"	"A thing may be taken to be more precious in itself which we choose rather for itself, without anything else being likely to come of it."	118b24-26
Property	D25	By Desirable alone	"for a thing of such a character that a man might well desire and object to it alike is less desirable than the other which is desirable only"		118b37-40

Table XII.16 Judging Desirability (Top, 116b10-118b40)

XII.3.iii Methodological Guidelines for Phronetic Social Science

Guideline	Description	Page	Element	#
Meaning is deferred	Initially no position is taken as to the truth-value ascribed by participants	135	How	13
Power relationships	Poses questions about power and outcomes	131	How	5
Emphasises detail	Focuses on detail and asks little questions about the basic concerns of life	133	How	7
Action or event driven	Practices are recorded as events without initially ascribing meaning	134	How	12
Practical Rationality	Evolve by virtue of deep-going case experiences		How	18
Asking "How"	Focusses on dynamic question of "How" in addition to the structural question of "Why?"	136	How	21
Historical	Central to phronetic research both as 1, narrative of specific actors and events, and 2. The recording of historical development.		How	22
Habitus	Understanding from within and without	138	How	25
Focus on values	Central values are primary	130	What	2
Situational Ethics	Focus on value-rationality as opposed to scientific or technical rationality. The focus is on Sittlichkeit (ethics) rather than Moralität (morality)	53, 136	What	3
Practice before discourse	Practice is more fundamental than theory or discourse	134	What	10
Studying cases and contexts	Knowledge of particular *circumstances (Aristotle)* or concrete examples (Foucault)	P135	What	16
Doing narrative	Central to describing actors and actions as well as historical context. "Our most fundamental form for making sense of experience."	137	What	23
Close to reality	Situated in and amongst the phenomenon, group, individuals or archives.	132-133	Where	6
Vast sources of data	Detail requires range of data	133	Where	8
Common situations	Focuses on practical activity and practical knowledge in everyday situations	134	Where	11
Multiple voices	Includes and is included in multiple voices with no one voice claiming final authority		Where	26
Thick descriptions	Describing and interpreting the context of the situation or behaviour of social action. It also involves ascribing present and future purpose and intentionality to the behaviour.	(Ponterotto, 2006:539) Ponterotto, 2006 :539	Wheter	9
Meaning is inferred post facto	Add the aim, purpose, intention after having artificially removed it and emptied the deed	Nietzsche in Flyvbjerg:134	Which	14
Contextual	Consider local context for immediate meaning, and larger or global context for general and conceptual significance		Which	17
Judgement	Contingent on context-dependant judgement. Cultivated and communicated via the exposition of cases	135, 136	Which	19
Generalisation	Does not exclude attempts at empirical generalisations	136	Which	20
Joining agency and structure	Focuses on both actor level and structural level as well as the relationship between the two. (Person & the act & circumstances)		Which	24

Distancing	A focus on practices allows “self-removal” in order to evaluate human action in context	135	Who	15
Contribution	Produces input to social dialogue and praxis rather than ultimate organisational truths.	139	Why	1
Socio-historical context	Obtains meaning from the socio-historically conditioned context	130	Why	4

XII.3.iv Rhetorical Speeches

Subject	Oratory and Kind	Element	Divisions (Purpose or Why)	Means of Persuasion (With)	Method (How)	Questions (What)	Time (When) Cicero	Ends	Reference (Rhet)
Circumstances	Forensic (Legal, Judicial)	That	Evaluation of past voluntary and involuntary action "The characters and circumstances which lead men to commit wrong, or make them the victims of wrong" in order to accuse or defend	*Logos* - by proving the truth of the statements made.	Circumstances or facts of the case. ***Enthymemes***	What is possible or impossible, whether something has or will occur, show good or harm, great or small, absolutely or relatively, justice or injustice	Past Ante-rem, "About the facts"	Justice and Injustice	1403b12
Categories	Categorical/Classification	With	"In considering this subject we must look at all the categories: an act may be an act of kindness because (1) it is a particular thing, (2) it has a particular magnitude or (3) quality, or (4) is done at a particular time or (5) place." (1385b5-7)	*Definition* – "To take Kindness next: the definition of it will show us towards whom it is felt, why, and in what frames of mind"	Definitions of terms. ***Deduction***	"We now see to whom, why, and under what conditions kindness is shown; and these facts must form the basis of our arguments."	Past Ante-rem, about meaning	Definitional subjects	1385a15-b10
Topics	Topic (of speeches)	Which	"Notions possessed by everybody, as we observed in the Topics when dealing with the way to handle a popular audience"	*Topos* – Subjects bound to master the proposition relevant to them	Examples (cases), Rhetorical **Induction**	Facts, injury & justification (by **enthymeme**)	Around the case Circa-rem	Topics or Problems	1403b12
Ethics	Epideictic (Ceremonial)	Whether	Praising of virtue and censuring vice	*Ethos* - by giving them the right impression of the speaker's/agent's character	Rhetorical Syllogisms, Enthymemes, Deduction ***Amplification***	Practicality or justness of proposals (by **example**)	Present In re, "	Honour and Dishonour	1359a11-25
Judgement	Political (Deliberative)	Why	To propose or discourage a particular course of action with knowledge of what is good for happiness or outcomes (Ends)	*Pathos* - by working on the emotions of the judges themselves	Teleology, Causality, Retroduction ***Examples***	Speaker credibility and facts taken on trust (by **character**)	Future Post-rem, "After the fact"	Expediency and inexpediency	1358b1-35

Subject	Oratory and Kind	Element	Divisions (Purpose or Why)	Means of Persuasion (With)	Method (How)	Questions (What)	Time (When) Cicero	Ends	Reference (Rhet)
Style	Lexis	How	The style or language to be used, and the proper arrangement of the parts of speech	Lexis - Appeal to Style and Structure	Delivery, Language and Reasoning	Clarity, Style, Appropriateness, Taste, Structure	Timing, pace	Delivery, Style, Appropriateness	1403b1-5

XII.3.v Lines of argument

Aristotle outlines 28 different lines of arguments from the Rhetorica as outlined below.

#	Proof	Description	Criteria, Question	Reference
1	opposites (contraries)	Consideration of the opposite of the thing in question	Does the opposite have the opposite quality?	1397a6
2	Modification	modifying key words and comparing them	Can the same be said of the original word than the modified one?	1397a20
3	Correlative	Does what apply to the one (A), apply to the other (B)	Is it right for (A) to be done to, AND is it right for (B) to do so	1397a22
4	a-fortiori	Does something exist where it is unlikely to exist?	Does it exist where it is likely to exist. If not, it is unlikely to exist where it is less likely.	1397b12
5	Time	Fulfilment of conditions prior to an event or action	Was a promise made prior to the act?	1397a28
6	Reversal	Apply to the speaker what he has said of himself. Discrediting prosecutor.	If speaker would not do it why would listener?	1397a20
7	Definition	Defining terms in terms of what it is.	Does the defined term exist?	1398a15
8	Sense	The various senses of a word (Outlined in Topica)	What are the different senses of the word or term?	1398a25
9	Logical Division	Divide terms and refute individually	Are the terms that are separated all true i.e. A AND B AND C?	1398a31
10	Induction	Generalising the specific to the general.	Does the particular instance exist in the general case?	1398a33
11	a-priori	Decision based on a prior decision, either on same subject, similar or contrary?	Are there previous decisions on the matter?	1398b19
12	a-partitio	taking separately the parts of the subject.	What kind of part is this?	1399a7
13	Consequence	Using consequences as a reason.	What are the consequences? Good or bad?	1399a9
14	Divarication	Opposite consequences of two opposites.	Which of the two opposites are better?	1399a19
15	Opinion	Contradicting common opinion which people say but not mean.		1399a27
16	Rational Correspondence	If A should be true, then B should be also?	Can A be applied to another case?	1399a33
17	Antecedent	If two results are the same, so should be their antecedent	Are two results the same? What is the antecedent of the known case?	1399b5

#	Proof	Description	Criteria, Question	Reference
18	Reversal	Men often reverse (unsuccessful) earlier choices.	What was the previous choice, and its reverse?	1399b13
19	Possibility	The possible motive is the real one	What is the possible motive?	1399b18
20	Inducements	Consider inducements and deterrents.	What motives do people have for doing or avoiding the action.	1399b32
21	Incredible	A thing that seems incredible or improbable could be true	Is this case incredible?	1400a5
22	Contradictions	Contradictions of dates, acts or words?	Are there any contradictions in facts or conduct?	1400a15
23	False impression	Why the facts are not what they seem to be?	Is there another interpretation of the facts?	1400a24
24	Cause and Effect	Showing that when the cause is present, the effect is too.	Is the cause responsible for the effect?	1400a30
25	Choice	One would always take the best course of action.	Is there a better course of action in those circumstances?	1400b1
26	Inconsistency	Contemplated action is inconsistent with past action.	Is contemplated action consistent with past action?	1400b5
27	Consistency	Make previous mistakes the grounds for accusation.	Can previous mistakes be used for accusation or defence?	1400b8
28	Meanings	Draw meanings from names	Can a significant meaning be drawn from the name?	1400b17

XII.3.vi Rhetorical Style/Lexis

Term	Description/Quote	Reference
Clarity	"Style to be good must be clear, as is proved by the fact that speech which fails to convey a plain meaning will fail to do just what speech has to do"	(1404b2-5)
Appropriateness	"It must also be appropriate, avoiding both meanness and undue elevation; poetical language is certainly free from meanness, but it is not appropriate to prose."	(1404b4-5)
Naturalness	"We can now see that a writer must disguise his art and give the impression of speaking naturally and not artificially."	(1404b18-20)
Strange words	"Strange words, compound words, and invented words must be used sparingly and on few occasions"	(1404b27-30)
Good Metaphors	"Metaphors, like epithets, must be fitting, which means that they must fairly correspond to the thing signified"	(1405a9-11)

XII.3.vii Stylistic fallacies

Compound Words	Misuse of compound words	(Rhet, 1405b35)
Strange Words	Employment of strange words	(1406a7)
Epitaphs	Long, unseasonable, or frequent epitaphs	(1406a11-13)
Metaphors	Metaphors may be inappropriate	(Rhet, 1406b5-6)

XII.3.viii Terminology and arrangement

Term	Description	Reference
Connecting words	Proper use of connecting words	(Rhet, 1407a19-21)
Vague terms	Calling things by their names (not vague general ones)	(Rhet, 1407a31-33)
Ambiguities	Avoid ambiguities	(Rhet, 1407a33-34)
Gender	Proper use of gender, he, she, it	(Rhet, 1407b8-9)
Plurality	Express plurality correctly	(Rhet, 1407b9-10)
Punctuation	Appropriate punctuation	(Rhet, 1407b12-15)

XII.3.ix Appropriateness

Term	Description/Quote	Reference
Impressiveness	"Describe instead of naming"	(Rhet, 1407b26-40)
	"Represent things with the help of metaphors and epithets, being careful to avoid poetical effects."	
	"Use plural for singular, as in poetry"	
	"Do not bracket two words under one article, but put one article with each"	
	"Use plenty of connecting words ; conversely, to secure conciseness, dispense with connectives, while still preserving a connexion "	
	"to describe a thing by mentioning attributes it does not possess"	
Appropriate	"Your language will be appropriate if it expresses emotion and character, and if it corresponds to its subject."	(Rhet, 1408a10-11)
Correspondence	"Correspondence to subject means that we must neither speak casually about weighty matters, nor solemnly about trivial ones ; nor must we add ornamental epithets to commonplace nouns, or the effect will be comic"	(Rhet, 1408a12-15)
Aptness	"This aptness of language is one thing that makes people believe in the truth of your story: their minds draw the false conclusion that you are to be trusted from the fact that others behave as you do when things are as you describe them; and therefore they take your story to be true, whether it is so or not."	(1408a20-25)
Genuineness	"Furthermore, this way of proving your story by displaying these signs of its genuineness expresses your personal character.2 Each class of men, each type of disposition, will have its own appropriate way of letting the truth appear."	(Rhet, 1408a25-30)

XII.4 Empirical observations/reflections

XII.4.i Students' perspectives on teaching and learning

Seq	Cat	Top	Empirical Observations
1		Forget (not) remember	SD1.1 This way of learning is *unforgettable*. SD1.2 This way of learning benefits students' *future*. I felt this saying was appropriate for the way in which I had *learnt* in this course. We were involved in all aspects and had to do most of the work ourselves…I *learnt* so many things during the course of this semester. I *learnt* things that I'll never *forget* in my life and things that will benefit me in the future. (C4_QA).
2		Self-realization	SD2.1 Waiting to be *taught* is a barrier towards *self-realization*. SD2.2 Students are able to *learn for themselves* without being taught. The main purpose of this was to realize all *that* we have *learnt*, *how* we have learnt it and try to realize *how* all that the teachers have taught us is just but that mentality engrossed in us all along of waiting to be *taught* what to do has been the barrier between us and *realizing* who we actually are, what we can learn for ourselves without being taught (C4_KM)
3		Self-Aware	SD3.1 These kinds of experiences and knowledge is *un-quantifiable*. SD3.2. These experiences make me *aware* of my responsibilities in (real) life. The *experience* gained and the knowledge gained in this research is not quantifiable. What I have learnt has made me *aware* of the *responsibilities* I poses, stand out' in submitting the assignment but in reality. (C1_AP)
4		Think	SD4.1 Learning how to *think* requires a lot of research. SD4.2 One can choose one's own *direction* by being able to take note of ones' thoughts. (Fundamental to self-direction) SD4.3 The lecturer emphasises *thinking* for oneself and not book learning, thinking in a box or doing everything that one is told to do. Learning *how* to *think* requires more than just sitting and scribbling your thoughts on a piece of paper, it requires research and a lot of it. (C4_SM) I have also been able to learn how to take note of my *thoughts* and understand that it is just a thought I must decide if I want to think in that direction. (C2_MJ) He doesn't want us to learn from the book and to think in a box and do everything that we are told but to think for ourselves which is an important *life lesson*. (C4_CC)
5		Group (Learning)	SD5.1 Learning in a group allows one to learn more from each other. My group members and I *learnt* a lot from each other, most importantly we *learnt* what it is like to work in a group that just clicked. (C4_LL)
6		Research	SD6.1 Doing research does not depend on lecture slides/notes to pass. SD6.2 Doing research requires one to get the required information and *understand* it yourself. SD6.3 Doing research practically allows one to see/prove that theory comes from practice.

Seq	Cat	Top	Empirical Observations
			I have *learnt* that research is not one of those modules that I have to depend on lecture slides/notes to pass it but I have to make means all by *myself* to get more information and *understanding* of all the material taught in class and perform/do it practically to better *understand it and see/prove* that theory is the fundamental to practical's. (C4_SM)
7		Opinion	SD7. These skills give one the confidence to make one's *opinions* known by being able to back it up with research. The skills I have learnt in this module will help me do this, also having confidence in making my *opinion* known and giving a reason for this opinion will help me as I will be able to back it up with research that I found. (C4_LLL)
8		Viewpoint	SD8.1 Working in a group provides one with different *viewpoints* from other people. SD8.2 Groups members are able to explain things better and show one how to do things. What I really liked was getting to different *view* point from different people and learning from them. The group really taught me a lot, they explained various things to me that I never understand and showed me techniques on how to do certain things. (C3_HM)
9		Imagination	SD9.1 Students *imagination* may hinder the learning process. SD9.2 Students may not be able to *think* for themselves if they don't learn to use their minds. I wonder how important it is to use your *imagination* and whether this could hinder the learning process? How will students learn to use their minds, will they be able to think for themselves? (C2_NL)
10		Notice	SD10 The lecturer's role is not *noticeable* as it helps students to learn more about themselves. The lecturer played a big role in my learning although I did not *notice* it at first. The way he does things helped me learn more about myself and see what aspects I needed to grow in my leadership roles. (C4_VN)
11		Attention	SD11 Paying *attention* in class allows one to apply the concepts in the real world. In class I would learn the concept through paying *attention* then apply it outside class in the real world and that could be during group meetings or any other social gatherings (C4_KM)
12		Focus	SD12 Students are easily distracted and have a short *focus* period. SD12.2 Students can learn to remain *focussed* on one point by asking questions about *how* things are and *how* they should be. I learnt that I am easily distracted and have a short *focus period*. (C1_LM) I needed to take a step back each time I read any articles or found out any new information, and think. I needed to then analyse what I had thought, and rethink it. I found myself asking many question in my mind about *how* things are and *how* they should be, and learning to remain *focused* on *one point*. (C4_LM)
13		Perspective	SD13.1 Learning from others provides one with a different *perspective*. SD13.2 *Reflection* allows one to link one's learning to the broader *perspective* (Repeat from reflection) SD13.3 Group discussions allows one to put things into *perspective*. It's kind of interesting to learn from someone else because you find that you *see* things in *different perspectives*. (C4_NM) Moreover, reflection is about linking one increment of learning to the wider *perspective* of learning - heading towards seeing the bigger picture. (C4_MH) From group discussions, it was possible to bring together a number of different concepts which we learnt and this made it possible to put things into *perspective* and make sense of the new knowledge in order to contribute to the final paper. (C2_NL)

XII.4.ii Format of the course

Seq	Cat	Top	Empirical Observations
14	Form (Formal Cause)	Informal	SD14.1 Students can be guided to become self-motivated through an *informal* manner. SD14.2 The lecturer should focus more on the learning aspects of individuals than by providing them with literature. SD14.3 This kind of learning is inspiring, fun and exciting. However with this research and philosophy module things were done in an *informal* manner and learning was self-motivated through our guide Walter of course. I feel that he focused more on the learning aspect of individuals, allowing us self-develop our minds; bringing it alive rather than just throwing boring literature at us. As the course progressed I began to find the learning inspiring, fun and exciting. (C4_ZA)
15		Structure	SD15 Students learn how to do analysis on their own by *structuring* it using other examples. Through doing the analysis on my own and learning to *structure* it correctly through using other examples, it has been a new learning experience which will assist me when needing to do so on my own later on. (C2_NL)
16		Organise	SD16.1 By being in a management team teaches students how to organise their lives so that things can be done in time. SD16.2 Being in a management team teaches one patience. SD16.3 Being in a management team teaches one how to work better with others. Most of the other lessons came from being in the management team of the exam assignment, I had to learn to *organise* my life so that everything was done in time, I also had to learn patience with everybody, but most importantly it taught me how to work better with others. (C4_LLL)
17		Design	SD17. Being in a research team teaches one how to *design* ones' research. The experience of being in a research team was remarkable. I've learnt how the process of a research *design* is conducted. (C3_YH)
18		Aim	SD18.1 The aim of group work is the get to know how to work with each other. SD18.2 The course inspires students to 'aim' to contribute to society through community projects. SD18.3 The course taught students how to carry out research SD18.4 The course taught students 'why' they do what they do. SD18.5 The course taught students about Dewey's aims of education, which is teaching students how to think rather than what to think. I learnt a lot about my group members. I learnt about their strength and weaknesses, how they work so that we can use a common method of working that would be suitable for all of us as it was all our aim, to get to know how we were going to work with each. (C4_SM) As the course progressed I began to find the learning inspiring, fun and exciting. I have this new zest to work with a group again and be a part of a project. My aim is to contribute to society through community projects and aiding those in poverty and need. (C4_ZA) Besides learning on how to carry out research and the reasons as to why we do what we do, I took something really valuable from Walter, which is summed up in a quote by John Dewey as follows, "the aim of education should be to teach us rather how to think, than what to think – rather to improve our minds, so as to enable us to think for ourselves, than to load the memory with thoughts of other men". (C4_MH)

Seq	Cat	Top	Empirical Observations
19		Objective	SD19.1 The overall *objective* of the course is for students to learn (as they are students). SD19.1a (Corollary) The overall *objective* of the course is for lecturers to teach (as they are lecturers). SD19.2 Students learned from *experience* rather than from the traditional text-book. SD19.3 Students needed to go with what they knew as they did not know many research techniques. SD19.4 Class talks centred around conducting research but never the actual analysis. The *overall objective* is to learn as I am a student. My approach was to learn from the experience rather than the traditional text-book centric form. I just went with what I knew as did not know many research techniques. We had talks on conducting research but we hardly ever focused on analysing research. (C3_CH)
20		Goals	SD20.1 Students learned to set long-term *goals* rather than aiming at what is facing them SD20.2 Students in *groups* sought out common *goals*. Moreover, I have learnt that I have to understand myself fully, be myself, believe in myself, be motivated and see myself succeeding. More importantly I have learnt to *aim* high or to have *long term goals* than just *aiming* only at what I am facing currently. (C4_SM) I learnt how to work with group members from different walks of life and how to find common ground with them when seeking a *common goal* – which was the contribution we needed to make towards the final research of the *module*. (C4_NM)

XII.4.iii Course planning

Seq	Cat	Top	Empirical Observations
21	Planning	Expectations	SD21.1 Students *expected* to learn from the group and the process. SD21.2 Students have *become* sceptical of other's ideas. SD21.3 Students have *learned* how to report on their findings SD21.4 Students have *learned* to speak in front of people. SD21.5 Students have *learned* how to be leaders SD21.6 Students have learned how to separate their own lives into work, play and studies. SD21.7 Students *expected* to gain knowledge of research methods in the course. I had no real *expectations* of the group and the process except for the fact that I could learn. (C2_NL) I ended up changing my way of accepting others ideas, I'm sceptical about any facts that are thrown around, I know *how* report back on my findings, properly, I can speak in front of people, I can actually be a leader if I just accept the role and do my best at it, I've stopped doubting myself so much and I can final separate varsity, work and play. (C4_LLL) My *expectations* of this course were fully met, because I *expected* to do a lot of research, literature reviews, learn about different research methodologies and research designs, learn *how* to use technology-based programs tools in my research, grow personally and academically and this all has taken place because I have gained so much knowledge than I had before. (C4_QN)
22		Expected	SD22.1 Students were kept on their toes; never knowing what to *expect*. SD22.2 Students learned about life and not book knowledge. SD22.3 The learning was different to any other module taught at the university. SD22.4 The course helped students learn more about themselves. SD22.5 The course helped students learn more about *how* to work with others. SD22.6 The course helped students learn more about *how* to cope with situations SD22.7 The course helped students learn more about the mind-set to have. SD22.8 The course contributed towards the students' self-growth. SD22.9 Students learned that it is ok to trust their instincts. SD22.10 Students learned that it is ok to think outside the box. SD22.11 Students learned how to do what is expected without asking for re-assurance. SD22.12 This method of working expanded students' knowledge SD22.13 This method changed the way that students think SD22.14 This method changed the way that students work SD22.15 Students have become less pressured to follow rules and boundaries I was always on my toes, never knowing what to *expect* and what was next but this is life and this was very different to any other module taught at the university we never learnt book knowledge but life knowledge. (C4_CC) This course benefitted me in other ways that I never *expected*, it helped me learn more about myself, *how* to work with others, *how* to cope with situations, the mind-set to have, it contributed towards myself growth. (C4_MH)

Seq	Cat	Top	Empirical Observations
			I learnt that it is okay to trust my instincts; it is also okay to think outside of the box and do what I already know is *expected* without asking too many questions in order to get re-assurance. This method of working expanded my knowledge changed the way I think and view my work because I am now less pressured to follow rules and boundaries. (C4_QN)
23		Planning	SD23.1 Students learned how to be independent researchers. SD23.2 Students learned how to learn from their own mistakes. SD23.3 Students have learned how to prepare themselves for the future. SD23.4 Students have learned how to plan and manage their time. SD23.4a Students have learned that planning and managing their time is important. SD23.4c Students have (also) learned that no matter how much you plan, life is unexpected. SD23.5 Students have learned to read and think critically on their own. SD23.6 Students have learned that the only certainty in life is to be in the moment and nowhere else. SD23.7 Students were encouraged to take the initiative. SD23.8 Students were encouraged to be self-directed. SD23.9 Students were encouraged to be innovative. SD23.10 Students were encouraged to be creative. SD23.11 Assignments were *strategically* planned. SD23.12 Classes were *strategically* planned. SD23.13 Group leaders planned how they were going to do the survey. I learnt to be an independent researcher, to learn from my mistakes and to prepare myself for future just in case I'm given a task to do and I have to do it alone for the first time. I now know how to manage my time, *plan* and stick to my plan, read and think critically all by myself without group members. (C1_FLM) I learnt that *planning* and time management is important. (C1_LEM) 2 weeks before the deadline I realised that life is a series of actions and reactions, and that no matter how much you can *plan* to do something, if life doesn't want it to happen, there isn't a damn thing you can do about it, so be in the moment and nowhere else, as that is all that is certain. (C2_TG) He encouraged us to take initiative, be self-directed, think freely and be innovative and creative. He strategically *planned* our assignments as well as classes. (C4_MH); This was our first meeting on as group leaders on Tuesday. The discussion was based on the big day. We *planned* on how we are going to do the survey. The management team decided on allocating each team on certain positions to avoid confusion and issuing the same questioners to one people. (C4_MM)
24		Structure	SD24.1 Groups became the students support structure. SD24.2 Students had to learn how to manage and deal with other in their group. SD24.3 Students learned how to structure their analysis on their own by following other examples. SD24.4 The structure of the module taught the students many valuable life lessons. SD24.5 Students had a need for more structure. We were also *placed into groups* and these groups would basically be our support *structure* in this course, we had to learn how to manage and deal with each other which added to the experience of an unconventional class. (C4_QA).

Seq	Cat	Top	Empirical Observations
			Through doing the analysis on my own and learning to *structure* it correctly through using other examples, it has been a *new learning experience* which will assist me when needing to do so on my own later on. (C1_LM) I can confidently say that I have learnt many valuable *life lessons* from "the *structure*" of this module so far and I look forward to learning many more. (C4_SP) I loved that this module was so different and that a lot of it was free styled. I liked that the lessons learnt in class was not out of a book, but reality and an eye opener. On the other hand I found that I needed some *structure*. I was okay with having no course outline and set dates, BUT, I do think that some dates should have been set for definite. (C4_CK)
25	Planning	Process	SD25.1 The *process* of *learning* was initiated in the class, but was mostly from doing the work. SD25.2 This *process* was about *learning*. SD25.3 The *approach* was to understand and to learn *how* to research and how to benefit from each *process*. SD25.3 Students learned as they went along (ad hoc- reflecting the way that the course was taught) SD25.4 Students were encouraged to learn for themselves. SD25.5 Group discussions allowed students to bring together a number of different concepts SD25.6 Group discussion allowed students to put things into perspective and make sense of new knowledge. SD25.7 Students learned the methods and processes for doing research on their own. Walter initiated the learning *process* during classes. Although most of the actual learning was from doing the work, we learnt as we went along. We were given tasks and some form of guidance, yet we were encouraged to learn for ourselves. (C4_MH) As a student this *process* was about *learning*. Therefore the approach was to understand and to learn *how* to research and how to benefit from each *process*. From group discussions, it was possible to bring together a number of different concepts which we learnt and this made it possible to put things into perspective and make sense of the new knowledge in order to contribute to the final paper. (C1_NL) I also learnt various *methods* and *processes* of doing things and *methodologies* that can be used when doing research. This assignment also made me look at research projects differently to normal projects. (C3_HM)
26		Shape	SD26.1 Students learned to see the *shape* of their strengths and weaknesses in a different light (reframing). So far in this course, I have learnt a few things about how certain strengths and weaknesses of mine seem to take a different *shape* and size… I think it's more the result of me looking closer at qualities and flaws that I thought were certain, and then seeing them in a new light. (C4_NM)
27		Curriculum	SD27.1 The approach taught students a lot about their potential unlike other courses where they learn the curriculum and not workplace dynamics. SD27.2 The module made students learn more about the real side of life. SD27.3 The lessons learned (as secretary) were not part of the curriculum. I have realized a lot about my potential courtesy of this approach. This has differed from *other modules* in the sense that in other modules we learn the *curriculum* and not the real working place dynamics. IFS 352 has made us learn the much more *real side of life*. (C4_KM) I practiced the first lesson at home, work and other modules. The lessons learnt while I was secretary happened at home or at campus. These were usually things that were not part of the *curriculum*. (C4_LLL)

XII.4.iv Sequence of the assignments

Seq	Cat	Top	Empirical Observations
28		Research	SD28.1 The overall *objective* was to learn how to do research through experience. SD28.2 Students learned that they had to do the research themselves. SD28.3 Students learned that they had to decide for themselves what needed to be done. The overall objective is to learn as I am a student. My approach was to learn from the experience rather than the traditional text-book centric form. I just went with what I knew as did not know many *research* techniques. (C3_CH) I learnt that we actually had to do our *research* on most of the things, that we had to decide for ourselves what had to be done, I remember this realisation very clearly because my group and I were stuck on a literature review that we were given by the management team (C4_QN)
29		Assignments	SD29.1 Students learned that they can educate themselves without an instructor. SD29.2 Students learned that the basis of philosophy is to 'know (for) thyself'. SD29.3 Students were able to evaluate themselves on how far they come in the course as a result of the assignments on 'about yourself' and 'student life at SAU'. SD29.4 The internet was a major tool for students to access information and journals for the (research) assignments. SD29.4 The internet (also) served as a way to resolve any confusion and fond out ways to complete tasks. SD29.5 The students learned how to write a literature review and a synthesis by conducting internet research on it. I have learnt that I can do work on myself and educate myself without an instructor. That is the basis of philosophy. There are some things which one cannot be taught by a lecturer but one has to be given an opportunity to do the things. (C4_KM) We learnt about ourselves and created a background on our then process and a history that we can look at when evaluating how far we have come. This was done in the form of 2 *assignments*, namely; the "About Yourself *Assignment*" and the "Life in SAU *Assignment*". (C4_NNN) The internet was definitely a major tool as it allowed me to access a wide range of information and journals in order to gain more knowledge on the *assignments*. It also served as a solution for any confusion and ways in which to complete the tasks. For instance, I learnt how to write a literature review and conduct a synthesis by conducting internet based research on it. (C4_SBP)
30		Google	SD30.1 The research databases was of great help to the students, not only for this module but for other modules. SD30.2 In the past students mainly used Google and Google scholar for their assignments. This was a great help, not only with this module but my other modules as well. For the past 2 years I only searched the internet for article looking at *Google* and *Google scholar*, but when I learnt about the databases on the SAU website it really helped me a lot and I think if I never learnt this I would never have found my article on who are the users of smartphones. I searched everywhere and that was the only place I found an article. (C4_NCC)
31		Dropbox, Mendeley	SD31.1 Students learned how to use Dropbox and Mendeley in order to organise their research. I realized that I had to be more organized. I then *learnt* how to use Dropbox and *Mendeley* which made my life much easier when it came to downloading and saving all the group articles. (C4_QA)

XII.4.v Learning experiences

Seq.	Cat.	Top.	Empirical Observation of Experiences
35		Activities	SD35.1 Students based their reflections on the activities (what I learnt, when, where, with, how, who was involved in my learning, why) that they did on the course. The *reflection* is based on the activities that I carried out throughout enrolling in IFS352 class/course, what I learnt, when, where, with, how, who was involved in my learning, why and a conclusion. (C4_SM)
36	Experience	Learn	SD35.1 One of the unstated duties that the lecturer expected of the students was 'just learn'. (I.e. learning experience). SD35.2 The lecturer expected the students to 'truly understand what it is like to be a student and open our minds and eyes to an opportunity of true *learning'* (C2_YS) SD35.3 Learning came from being 'pointed' in a direction and then trying their best to grasp the ideas and understandings. SD35.4 Student learned through the practical application of the project and the theory they learnt about. SD36.5 The lecturer was learning as much from the experience as the students were (Saddington on Dewey). SD36.6 The lecturer also did not have the answers to the students' questions (teaching students to find the answers to their own questions). Another unstated duty which was needed of us was to just *learn*. This may seem a bit absurd but if I look back to identify basic tasks which were expected of us by Mr. Uys, possibly the main theme I find was that which I have identified as a "Just *Learn*" duty. This can best be described by myself as the duty or expectation where we as students truly understand what it is like to be a student and open our minds and eyes to an opportunity of true *learning*, this was seen through the practical applications of the project and the theory we learnt about. Our *learning* stemmed from being pointed in a direction and being identified by Mr. Uys and then just tried to the best of our abilities to grasp the ideas and new understandings thrown at us in a way we've never had them thrown at us before. (C2_YS) After the data analysis it became apparent that he was learning as much from the experience as we were and that he by no means had all the answers to much of our unanswered questions. (C2_TG)
37		Experience	SD37.1 The approach was to learn from experience rather than the traditional text-book approach (duplicate) SD37.2 The students experienced what it was like to be in a management team and run a big project. SD37.3 The students learned how to write literature reviews and a synthesis SD37.4 The students learned how to research. SD37.5 The students learned how to reference. SD37.6 The students learned how to take initiative. SD37.7 The students learned to question how normal it was for them to follow whatever the lecturer says. SD37.8 The lecturer showed the students a brand-new way of thinking. SD37.9 Students need to learn from their experiences in order to avoid repeating the same mistakes.

Seq.	Cat.	Top.	Empirical Observation of Experiences
			SD37.10 Students need to evaluate what they learned in every module My approach was to learn from the *experience* rather than the traditional text-book centric form. (C3_CH) I experienced what is to be in a management team and run a big project. I've learnt how to write literature reviews and a synthesis, how to research, how to reference and how to take initiative. Your ways made me question, as well as realise how normal it is for me to follow whatever the lecturer says, it gave me a brand new way of thinking. (C4_CJR) We all need to learning from our *experiences* to avoid repeating the same things over and over again. Students need to evaluate what they have learnt in each and every module/course they do so that they can be able to see what value did that course contributed to the student education. (C4_SM)
35		Activities	SD35.1 Students based their reflections on the activities (what I learnt, when, where, with, how, who was involved in my learning, why) that they did on the course. The *reflection* is based on the activities that I carried out throughout enrolling in IFS352 class/course, what I learnt, when, where, with, how, who was involved in my learning, why and a conclusion. (C4_SM)

XII.4.vi Self-directed learning

Seq.	Cat.	Top.	Empirical Observations
SD41		Guideline	SD41.1 Student learned early on that they would not be spoon-fed or given detailed *guidelines*. I have learnt very early in this course that we would not be spoon fed and told every single detail or *guideline*. (C4_SBP)
SD34		Support	SD34.1 Student learned that one can support a project from behind. SD34.2 Student learned humility and acceptance in a serving position. Gaining humility and accepting my role as one of support enabled me to learn that there is more than one way of project support and one does not always have to lead from the front i.e. project leader position. (C2_HvdS)
SD38		Approach	SD38.1 The approach of the course was to learn of to benefit from each step in the research process. SD38.2 Student learned how to approach sensitive topics with other people SD38.3 Student learned about Philosophy (IS, African) SD38.4 Student learned about different schools of thought for doing research SD38.5 Student learned by *themselves* how to approach certain aspects of the course. SD38.6 The approach of the course is learning by doing. (Quote C4_AM) SD38.7 The learning process was initiated during classes. SD38.8 The actual learning was from doing the work.

Seq.	Cat.	Top.	Empirical Observations
			SD38.9 Tasks were given with some form of guidance. SD38.10 Students were encouraged to learn for themselves. SD38.11 This approach placed a lot of stress on the leaders. Therefore, the *approach* was to understand and to learn how to research and how to benefit from each process. (C4_LM)) I learnt how to deal with people better and how to *approach* certain topics better when they needed to be discussed with others, as certain topics can be quite sensitive to certain people. (C4_SP) I *learnt* about IS philosophy, African philosophy, different schools of thought for research and just *how* to *approach* certain aspects of the course. (C4_QN) This *approach* is learning by doing, not being given a fish, but being taught how to fish so that you can do it yourself and teach, assist others along the way. (C4_AM) Walter initiated the learning process during classes. Although most of the actual learning was from doing the work, we *learnt* as we went along. We were given tasks and some form of *guidance*, yet we were encouraged to learn for ourselves. Another way of saying it is, "we had to research on how to do research". This *approach* has brought upon a lot of stress and responsibility on me being the leader. (C4_MH)
SD40		Direction	SD40.1 Everything the student learned about IS research she had to teach herself. SD40.2 Student enjoyed not being told what to do as it gave her a sense of finding her own way. (I hate being told what to do) SD40.3 Student found it frustrating when things remained without direction. Everything that I have learnt about IS Research I had to teach myself. I often enjoyed not being told what to do; it gave me a sense of *finding my own way*, although when things remained without *direction* it became extremely frustrating. (C4_STS)
SD42		Step	SD41.1 The lecturer wanted students to learn by finding their own way as they went along and not by spoon-feeding or helping them every *step* of the way. I think this was how Walter wanted us to learn. He never spoon fed us and help us each *step* of the way it was about finding your way as you went along. (C4_CC)
SD39	Way	Independence (RQ)	SD39.1 One learns to become *independent* by no longer needing to depend on the instruction and guidance of the lecturer (C4_NM) SD39.2 One learns to be *resourceful* through having to participate in the module SD39.3 One learns to *critically question* everything, whether it is the norm or not. SD39.4 One feels *prepared* to study further or/and enter the working environment through having learnt these things. Thinking back, I did not consider that today, from this teaching *approach*, I would have learnt; *Independence*. I no longer need to depend on the instruction and guidance of a lecturer to be able to formulate my own conclusions in terms of my work method and philosophy. Being independent also allows one to be able to exercise their process and methods, as in how they understand, interpret and analyse things. I can choose for myself what will affect me and how I can overcome it – based on my independence and experiences. *Resourcefulness*. Through the need for my participation in the module, I learnt how to be resourceful. This I did through my interaction with other students and people involved in the research. I also used a lot of resources for my research, such as; current SAU students, past students (from previous year), journals, librarians, lecturers, newspapers, electronic resources etc.

Seq.	Cat.	Top.	Empirical Observations
			Critical Analysis. This is important in that I now am able to critically analyse whatever it is that I do or that I am involved in. I have learnt that it is important to question everything – be it the norm or not. Having learnt these three things, I feel that in the future, as I prepare to study further and finally enter the working environment I will be able to become constructive, effective and efficient in all that I do. (C4_NM)
SD33		Independ	SD33. Student learned a lot about independent thinking by having to research their own topics. However, I have learnt a lot since then. I have learnt a lot about independent thinking as the topics we researched we were never taught before and they were just "thrown" at us. (C2_MK)
SD32		Initiative	SD32.1 Students learned how to trust their instinct and take initiative when they realised that the group leaders themselves did not know either. (Showing vulnerability). At that very moment that's when we realised that they themselves probably did not know how to guide each and every group and it was too much to ask them for everything and that's when trusting my/our instincts and *learning how to take initiative* was first learnt. (C4_QN)
SD43	Way	Way	SD43.1 The best way to learn something is to teach yourself. SD43.2 Learning must be about something you like and truly believe in. SD43.3 Learning must align with one's perspectives in life. SD43.4 The course was taught in a relaxing way, allowing students room to use their own ideas. SD43.5 Students needed to learn to think outside the box and use their own initiative in order to resolve the lack of information. SD43.6 Students learned a lot about the different ways that others approach their work. SD43.7 Students had their own ideas on how things should be done or approached SD43.7.1 Some students were lost and panicked SD43.7.2 Some students couldn't care less SD43.8 Students are able to learn in a way that suits them and not what the system requires of them. SD43.9 Whatever students have been taught in the past is not relevant in determining what they want or in defining them. SD43.10 One can only realise one's own needs and capabilities by learning for oneself. All these questions kept whirling in my mind, but the truth of the fact is that the *best way* to *learn* something is to teach yourself and that thing has to be something which you like, truly believe in and stand by it because it is suitable according to the one's perspective of life. (C4_KM) I found the *way* in *which* it was taught very relaxing as it gave me so much room to use my own ideas and I was not bound to any specific structure. There were a few initial hurdles, but they were overcome once I had learnt to think outside the box and to use my own initiative. This quickly resolved all lack of information and allowed me to find out for myself. (C4_SBP) Everyone had their own ideas of how things should be done or approached, others were lost and panicked the whole time, while others couldn't be bothered about which *way* the wind was blowing, but in all of that, I have learnt a lot about the different *ways* people approach work and how to just stay calm in some situations, even though it's easier said than done. (C4_QN)

Seq.	Cat.	Top.	Empirical Observations
			That *way* I am able to learn what I want to and not what the system wants me to learn. This means that whatever I was taught in over a decade of years is not really relevant in determining what I want and defining who I am. Rather, one can only realize oneself needs and real capabilities through learning for one self. (C4_KM)
SD44	Way	Purpose	SD44.1 The purpose of the classes was to reveal to students how the education system teaches indoctrinates students to wait to be taught. SD44.2 Waiting to be told what to do is the barrier to self-realisation. SD44.3 Students can learn for themselves without being taught (NB:C4KM) The main *purpose* of this was to realize all what we have learnt, how we have learnt it and try to realize how all that the teachers have taught us is just but that mentality engrossed in us all along of waiting to be taught what to do has been the barrier between us and realizing who we actually are, what we can learn for ourselves without being taught. (C4_KM)
SD45		Reflections	SD45.1 Reflecting on the research process helped students to understand their own thought processes. SD45.2 Reflecting on the research process helped students to critically evaluate themselves SD45.2 Reflecting on the research process helped students to critically evaluate their activities and the module This was such an important part of the research in that it helped me to understand my own thought process and critically evaluate myself as a learning student as well as evaluate the activities and module that I was involved in. (Value of reflection WU) (C4_NM)
SD46		Real world	SD46.1 sdfsdf pressures, emotions, struggles and fun involved with conducting a survey SD46.2 Actually conducting a survey of such a scale gave students an idea of how the real world operates. (Authentic learning) If this was to be taught in theory, I would have missed out on learning about the pressures, emotions, struggles and fun involved with conducting a survey. But the fact that we actually conducted the survey and felt what it is like to be involved in a huge research project made me learn the true side of the real world hence I have an idea of how the *real world* operates like. (C4_KM)
SD47		Platform	SD47.1 The lecturer taught me how to be independent and confident. SD47.2 The lecturer provides a *platform* for students by encouraging and listening to them. (So that's what a PhD is…A platform to profess) The most important lesson I learnt from Walter was how to *be independent and confident* in all I do. *He* gives *platforms* to students, encourages and listens to students. I could go on and on about this man that I've grown to admire. (C4_KK)
SD48		Stand up	SD48.1 Students have learned to stand up for what they want to achieve in life SD48.2 The course has taught students to stand up and voice their opinions (appropriately) when making decisions. I have learnt (that) nothing is what it seems and if I really want something I should go out there and work for what I want and *stand* up for what I want, as this was the only way I would achieve my goals and reach all my personal objectives. This past six months has taught me to *stand up* and *voice* my opinion, in an appropriate manner, especially when it came to decision making. (C4_SKP)

XII.4.vii Reflective practice

Seq.	Cat.	Top.	Empirical Observations Extract from TA. Include own observations	Subject
RP1	Perception (Material Cause)	Perception/ See	RP1. The practical nature of the class helped the students to *see* how enjoyable it was. And the more I ponder over this theme, the more I appreciate where I am today. And this *class* really supported me *to see* things from a different angle by actually applying the skill of *reflection*. I honestly *enjoyed* Walter's classes as he brought application into classes rather than theory. (C4_ZA)	*Enjoyed* Appreciate Class Application
RP2		Perception/ Clarity	RP2. Reflection gave the students *clarity* on what they were discussing in their teams. Looking back into the *researching process* and *team discussions*, I was able to truly think about and *reflect* on what others were finding and his gave me more *clarity*. (C4_LM)	Research Process Team Discussions
RP3		Perception/ Think	RP3.1 Reflecting over time allowed students to see how their *thinking* has changed. RP3.2 Reflections also allow the lecturer to see how the student's *thinking* evolves. But then as time passed by I realised that we were *reflecting* in order to see *how* we have grown throughout this course and *how* our way of *thinking* has evolved. This was also a way our lecturer could see *how* we have grown and changed in terms of the way we *think* compared to *how* we *thought* when doing our previous assignments. (C4_SP)	Time passing Growth Evolving
RP4		Attention	RP4.1 Reflection allows one to pay *attention* to what is happening around you RP4.2 Reflection allows one to *notice* how far you've come. A *reflection* is important as it helps you pay close *attention* to what you have been *doing* and what you have *endured* along the way and how far you have *come to be* where you are. (C4_VN)	Doing Endured Come to be
RP5		Perspective	P.5 Reflection allows one to gain a wider *perspective* on a learning situation Moreover, reflection is about linking one increment of learning to the wider *perspective* of *learning* - heading towards seeing the *bigger picture*. (C4_MH)	Learning Bigger Picture
RP6	Form (Formal	Aim	RP6. The *aim* of documenting is to reflect on the research project. (Why are we documenting) The main aim for this *document* is to *reflect* on the *course* and the *research project* that has been done by the *class* of Information System Research and Philosophy 2013. (C4_MM)	Course Class Project document

Seq.	Cat.	Top.	Empirical Observations Extract from TA. Include own observations	Subject
RP7		Objectives	RP7. The *objective* of the document is to reflect on the module. (What the document is used/useful for) Objectives of the *document* - "*reflect* on the IFS352 (Information Systems Research Methods and Philosophy) *module*" (C4_KK).	Document module
RP8	Plan (Efficient Cause)	Procedure	RP8.1 Reflection follows a specified *procedure* by asking the questions what, when, where, with, how, who and why of any situation. *RP8.2* Reflection allows one to find how {unscripted, improvised, *unplanned*, unrehearsed} the course was. *RP8.2.a* Reflection is a *procedure* that allows one to find the reason for one's concerns. This has been done by following a specified *procedure*. The following *questions* were asked to find results; what, when, where, with, how, who, why, and the *conclusion* will be provided at the end. The main finding of the *reflection process* is it worries the most that the course uses ad hoc *processes*; meaning there are no formal course outline provide for the course. This worries the most as the concern is on how will I plan for activities and how do I measure my performance during the course of the semester when marks are not provided. (C4_MM)	Procedure Questions Results Circumstances Conclusion Plan Process RP9Performan cRP10 Marks
RP9		Approach	RP9. *Reflection* is not confined to this module only as it is an *approach* that other lecturers use. On the other hand, this *approach* had some similarities to other modules for instance a research module I had with Mr Thaver, *time* is also not a factor with him, he also likes us to *reflect* and *chats casually* in class so that we can *feel* like we can *talk* to him about anything, which was *nice* and also like this module	Time Reflect Chats Feel Talk nice
RP10		Curriculum (not)	RP10.1 Reflection allows one to assess one's own abilities without the aid of the *curriculum* or lecturers. RP10.2 Reflection should be introduced earlier in the *curriculum*. RP10.3 The *class* was life-changing. The class was very different, and I believe it has been the turning point and life changing occurrence in my life. I have managed to have a *reflection* period on what I want in my life and not what the *curriculum* or the lecturers want of me. I have been given the opportunity to assess my personal ability without the supervision I had been used to. (C4_KM) Some *aspects* of IFS352 such as the literature reviews, more emphasis on research, frameworks and *reflections* should be introduced earlier in the *curriculum* such as in 1st or 2nd year. (C4_CJR)	Wants Lecturers (not) Personal ability Supervision (none) Introduce Earlier
RP11	Experience (Final Cause)	Experience	RP11.1 Reflection allows one to think beyond their assignment in order to *identify* the positives and negatives RP11.2 Reflections allow one to draw out what one has *learned* from their *experiences*. RP11.3 Reflections allow one to *identify* what aspects can be improved. RP11.4. Reflections allow students to *know* what they gained from experiences. RP11.5 Reflections are a *way* to learn. I'm really glad Mr Uys asked for a *reflection* to accompany the final *paper/assignment*. It allowed me *think beyond* the final product/assignment, so that I can identify the *positives, negatives*, and draw out what I learnt from the whole *experience*.	Final paper/ assignment Think beyond Experience Positives/ negatives Realisation

Seq.	Cat.	Top.	Empirical Observations Extract from TA. Include own observations	Subject
			In addition, the *reflection* helped me <u>*identify*</u> which aspects I can <u>*improve*</u> on, and what I can or should have done <u>*better*</u>. As I was busy with my *reflection*, I realised, "what's the point of doing an assignment or writing a paper, without reflecting on the whole experience?" <u>*How will I know*</u> what I've gained from this whole experience if I do not reflect?" As a result, I feel that the *reflection* is a <u>*way of learning*</u>. (C3_MS)	Gained Way of learning (Not sure what's cause/effect)
RP12	Because Why (Reverse Sequence)	Methods	RP12.1 There were *methods* to learn how to reflect. RP12.1a Reflections require a *method*. *Reflecting* is not merely just writing in a diary, there were <u>*methods*</u> I *learnt* as to how to do it.	Method
RP13		Knowledge	RP13.1 Reflections is the best *way* to *find out* how far one has *progressed*. RP13.2 Without reflection one cannot *know* what you have learnt. RP13.2.a Reflections allow one to *know* what one has learnt. RP13.3. Reflections allow one to determine where one is heading as well as how far one has *progressed*. *Reflection* is the best ever way to find out how progressive you are in any particular activity that has been done. We do reflection about our past to find the current standing. Without reflection it is not easy to find the actual *knowledge* about the lesson you learnt. (C4_NNM) I never *reflected* in a critical manner in my life before. This helped as I now had an exact account of my <u>*progress*</u> and <u>*where I was headed*</u>. (C4_CJR)	Find out Progress Know Standing Heading
RP14		Enrolment	RP14.1 Reflections allows one to evaluate one's enrolment decisions. RP14.2. Reflections are based on the circumstances of activities (the what, when, where, with, how, and who was involved). This paper personally evaluates and provides a *reflection* of my <u>*enrolment*</u> in IFS352 class. The *reflection* is based on the <u>*activities*</u> that I carried out throughout enrolling in IFS352 class/course, what I <u>*learnt*</u>, when, where, with, how, who was involved in my learning, why and a conclusion. (C4_SM)	Enrolment (choice) Activities Learnt Circumstances
RP15		Origin	RP15. Reflections can be caused by answering interrogative questions such as who, what, when, where, why and how (Race 2002). "In particular, my tenet in this article is that *reflection* can best be evidenced by answering questions. Just about all good questions have the letter 'w' in the key interrogative word - who, what, when, where, why and how, for example." (Race 2002).	Questions Circumstances

XII.4.viii Elements of a critically reflective practice in IS

Quint.	*Cat.*	*Top.*	Reflection Propositions	Empirical Observations
I	***Perceptions***	***Perception***	SD1.1 This way of learning is *unforgettable*. Making an impression Managing impressions Impression management	So as we come to the end of our semester and the IFS 352 ***course***, looking back through the semester I have realised *how* this ***course*** had made me question things. I have changed my ***perception*** on *how* I see things that consume my time and have decided that some things are just not worth wasting time on. (C4_SS) When I look back, I *wish* I had never had that first ***perception*** because it is a true example of why not to judge someone without knowing them even though now I feel even if you know them they shouldn't be judged because nobody has that right. (C_YS) The individual has to be able to work in a group and adapt to other people's behaviour, then take their own views and merge their *ideas* with *how* other team members view the world to create a better ***perception*** of the idea thought about." (C2_MJ)

Quint.	*Cat.*	*Top.*	Reflection Propositions	Empirical Observations
I		***Observation***	RP1. The practical nature of the class helped the students to *see* how enjoyable it was. RP4.1 Reflection allows one to pay *attention* to what is happening around you SD3.2. These experiences make me *aware* of my responsibilities in (real) life. SD10 *The lecturers' role is not noticeable as it helps students to learn more about themselves.* SD11 Paying *attention* in class allows one to apply the concepts in the real world. SD12 Students are easily distracted and have a short *focus* period. SD12.2 Students can learn to remain *focussed* on one point by asking questions about *how* things are and *how* they should be. P2.1 Students faculties of observation needs to be developed so that they become more *aware* of their environments. P2.2 Students need to be taught to pay *attention* to the moment so that they may notice things P2.3 Focussing students' attentions on specific questions allows them to remain *focussed*.	I then realized how interesting this was. I ***observed*** activities that I've never noticed before. I was surprisingly enjoying the first IFS 352 assignment for the semester and I guess it paid off when I got the highest in the class. (C1_NJ) This report concentrates primarily on the findings ***observed*** and what one can deduce from all the sources that have been used to establish the demographics of students in tertiary institutions using mobile devices. (C4_TZ) This was mainly to ***observe*** students perception on the impact which mobile technologies have been having on the students. (C4_KM) I also re-discovered why I had chosen my specific field of study which is Industrial Psychology, and this is because I enjoy working with people, I enjoy ***observing*** how the react in different situations they come across and evaluating the behaviour as well. (C4_AM) Skills that are thought regard us to use our feelings be able to interpret a body language and be more ***observant***. Therefore for me to be information systems researcher I need to acquire this skills through practise i.e. by conducting and researching all my assignments assigned to me in the IFS352 class. (C1_LPM) Therefore ***observation*** thought on how to use listening, smelling skills etc. Also made notice not all students act the same nor think, attend some courses and what I was surprising is the fact that this girl does not smoke and I had a perspective that all/ most colored smoke. Thus it goes back to what Walter said in first class that do not always believe what you see without knowing the actual fact and question so to get more understanding and closure. (C1_LPM) "When I was there I ***observed*** how open you were with the students. This is so essential to good teaching. It also seemed to be very important for you. To me this was a manifestation of a fundamental shift in your own being in the world. Of course I do not know much about your past, but I would guess that your life has transformed; by that I mean many preoccupations have fallen away." (Ngwenyama, 2011).

Quint.	*Cat.*	*Top.*	Reflection Propositions	Empirical Observations
I		***Seeing***	RP2. Reflection gives one *clarity* on what one is looking at. RP4.2 Reflection allows one to *notice* how far one has come. RP11.3 Reflections allow one to *identify* what aspects can be improved.	This course changed my life in the regard that I now value my studies and what I learned throughout my degree. I could ***see*** firsthand how all the different components work together and how it ties in with the theoretical aspect. (C4_QA) The course was taught exactly like that too, there were no set rules on how things should be done, no course outline for us to ***see*** how the tests would be rated and how and when the assignments would be given and assessed. (C4_QN) A sense of vision is mentioned above as it allows you to ***see*** how the article you are reading will fit in your technical report. (C1_LM) It is still extremely interesting to ***see*** how the phenomena of smartphones have impacted students all over the world. (C3_MVD) Thus it goes back to what Walter said in first class that do not always believe what you ***see*** without knowing the actual fact and question so to get more understanding and closure. (C1_LPM) And the more I ponder over this theme, the more I appreciate where I am today. And this class really supported me to ***see*** things at a different angle by actually applying the skill of reflection. (C4_ZA) I have changed my perception on how I ***see*** things that consume my time and have decided that some things are just not worth wasting time on. I have focussed a bit more on me, my health and making time for things other than studies. (C4_STS) Time went and we received feedback on the assessment we as a class wrote. Only to find out that this exercise was an exercise to test or ***see*** our stand of thinking. (C4_LD) Things such as getting to know who you really are and what you really want before paying R20 000 for the year and forcing yourself to ***see*** how well you can remember a hundred definitions. (C4_CK)

Quint.	*Cat.*	*Top.*	Reflection Propositions	Empirical Observations
I		***Thinking***	RP3.1 Reflecting over time allows one to see how one's *thinking* has changed. RP3.2 Reflections also allow the lecturer to see how the student's *thinking* evolves. SD4.1 Learning how to *think* requires a lot of research. SD4.2 One can choose one's own *direction* by being able to take note of ones' *thoughts*. (Fundamental to self-direction) SD.3 The lecturer emphasised *thinking* for oneself and not book learning, thinking in a box or doing everything that one is told to do.	I would like to *see* a student who can say that in their academic life they have never taken something straight from Google and pasted it on a very long assignment somewhere in the middle because they were tired of using their brains, unfortunately in university your own opinion is not much welcome because we are taught **how** to memorize the textbook and display our intelligence by getting 80's and 90's, not once in a module was I requested to write what I think. (C4_EA) This was all very intriguing and challenging But at the same time I did think to myself what if we were just being brainwashed all over again to go against what is right? (C4_CK) So much differences, and still it's crazy to think that we could work together and accomplish a goal which at times was never clearly identified, but still at the end of the day we did something at a third year level which possibly wasn't expected of us to do. (C2_YS) In this course, I am beginning to really examine people, who they are, **how** they think etc. It's kind of interesting to learn from someone else because you find that you *see* things in different perspectives. Donald Miller once said;"When you stop expecting people to be 'perfect', you can like them for who they are." (C4_NM)

Quint.	Cat.	Top.	Reflection Propositions	Empirical Observations
I		***Perspectives***		Muhammed's way of thinking introduced me to a different way of thinking completely, he *see*s the bigger picture and this is something I can's *see* as I usually focus on how we can get there and I usually forgot what the bigger picture is. We helped each other along the way in which he would *see* the big picture I would give an idea on **how** we could go about achieving it. (C4_LL) As a drifter, trying to stick to one point, it was difficult to structure my thoughts and focus on one thing at a time, especially when sitting with a number of articles in front of me therefore I gained ***perspective*** when meeting with my group and critically thinking about what I wanted to say and write. (C1_NL) All these questions kept whirling in my mind, but the truth of the fact is that the best ***way*** to learn something is to teach yourself and that thing has to be something which you like, truly believe in and stand by it because it is suitable according to the one's ***perspective*** of life. (C4_KM) There has been a lot of differences in these environments because in the labs it is more casual, interactive type of learning conversation-based and the outside learning is more individual and group learning- a more research based and academic type of learning, yes there were some fun times during the group meetings but it was a learning mainly based on sharing ideas and hearing other people's thoughts and ***perspectives***. (C4_QN)
II	***Format***	***Idea***		The social was a great ***idea*** it helped us to get to know each other outside of the *formal* environment. (C4_VN) We are currently working mostly in groups at this stage and the lecturer, as I've mentioned before, will give us an ***idea*** of what we need to do as a group in order to help make our research plausable and relevant to our *targets*. (C4_NM) All the other lecturers follow a course *outline*, they have dates set before the semester starts, they have a good ***idea*** of when assignments are due and they don't ask the students what to give them next. (C4_LLL); However, it would be a good ***idea*** if the Research and Philosophy was introduced in the 1st year of study. By now everyone would be having a strong background about this; we would not struggle even a bit. (C4_TZ)

Quint.	Cat.	Top.	Reflection Propositions	Empirical Observations
II		***Forming***		This assignment also made me look at research projects differently to normal projects. It made me go find out about the various formats, methods and structures that should be used when you ***forming*** a research assignment. (C3_HM) Why do we look back at the past and make assumptions about the future? What does that help? Doing so will only result in us preparing for a future that is based on past happenings, yet the future is unpredictable. ***Forming*** such estimations and assumptions can only result in the wrong outlook on what is to come – therefore it is more important to stay focused in the present. (C4_NM) My experiences with research is limited to ***forming*** my own redundant version of someone else's research data. For example; in school they would tell us to go research on a famous historian, and that's what I would do, find *information* on the historian, and give it in as my research. (C4_NM) Mzi visited again and this time taught on the importance behind researchers understanding the organisational structures in place and how they will affect our research. He also taught us the importance of us ***forming*** our own theories in developing organisational structures and research methods. (C4_NM) I don't like the thought of a stranger reading my "thoughts and feelings" and then ***forming*** an opinion about me. I don't like the thought of my "personal" work being used to other means that involve the research and interpretation of my thought process. (C4_NM)

Quint.	*Cat.*	*Top.*	Reflection Propositions	Empirical Observations
II		***Organising***	RP12.1 There were *methods* to learn how to reflect. RP12.1a Reflections require a *method*.	The first few meetings was difficult to ***organise*** because lack of participation. As a project on the side, there was no motivation with regards to the progression of the project. (C2_MG) I was the secretary of the group and I ended fixing a few problems in the class as I believed that if they are ***organised*** it will make the assignment run smoother. (C4_LL) I was chosen to be the group leader of my group and I put it upon myself to always keep my group ***organised***, informed and on time for all the tasks that had to be submitted. (C4_QN) I had to make sure that the groups are ***organised*** and most importantly ensure that my group had all the correct information. (C4_LL) I tried to get examples of mobile surveys I could share with my group as well help ***organise*** and go through with our survey day event. (C4_SP) I have also read literature reviews and constructed questions to put in our survey, seen to snacks, sent out mass emails, tried to get examples of mobile surveys I could share with my group as well help ***organise*** and go through with our survey day event. (C4_SP) Most of the other lessons came from being in the management team of the exam assignment, I had to learn to ***organise*** my life so that everything was done in time, I also had to learn patience with everybody, but most importantly it taught me *how* to work better with others. (C4_LLL)

Quint.	Cat.	Top.	Reflection Propositions	Empirical Observations
II		***Designing***		The way in which the education system is ***designed*** is no different to a bread factory where the baker puts in ingredients and certain heat on the oven so as to produce whatever they feel like. (C4_KM) The lecturers and the school ***design*** a system which shapes us into thinking in a way which they desire us to think. (C4_KM) Everyone was required to look at frameworks of *how* articles are structured, this was a foundation for us to understand what was required for our research ***design***. (C3_YH) The experience of being in a research team was remarkable .I've learnt *how* the process of a research ***design*** is conducted. (C3_YH) As time passed we started to get our footing and structure in the group as to who must do what, basically we found direction as to where we should be and what must be done to complete the journey 'so called research ***design***".(C3_HM) I found that throughout the process of planning, team members needed to be reminded of what our objectives are and *how* the final structure of the research ***design*** would look like. (C3_MM) The manner in which the tasks were ***designed*** provided a good preparation of *how* to handle situations in the real world. This module has also opened my mind to a certain extent and enabled me to realise many realities. (C4_MH)

II		***Directing***	RP6. The *aim* of documenting is to reflect on the research project. (Why are we documenting) RP7. The *objective* of the document is to reflect on the module. (What the document is used/useful for) Synonyms: Directions, Aims, Target, Goals, Objective	As time passed we started to get our footing and *structure* in the group as to who must do what, basically we found ***direction*** as to where we should be and what must be done to complete the journey 'so called research design". (C3_HM) Narrowing down my research helped a lot because now I gained sense of ***direction*** on *how* to *approach* my topic. (C1_TJ) Guidance is given to student researchers through interactions from the lectures, ***direction*** and advice was given on what to research and *how* to research. (C2_TL) As time passed we started to get our footing and structure in the group as to who must do what, basically we found ***direction*** as to where we should be and what must be done to complete the journey 'so called research design". (C3_HM) Walter showed us all a lot this semester and taught us *how* not to always depend on people to give you ***direction*** because you may not always have it in the working world. (C4_CC) Everything that I have learnt about IS Research I had to teach myself. I often enjoyed not being told what to do; it gave me a sense of finding my own way, although when things remained without ***direction*** it became extremely frustrating. (C4_STS) I learnt about their strength and weaknesses, *how* they work so that we can use a common method of working that would be suitable for all of us as it was all our ***aim***, to get to know *how* we were going to work with each other. (C4_SM) I've learnt so much, I've learnt new words, definitions, concepts, various theories, beliefs, assumptions, the purpose, role and ***aim*** of research, *how* to assess various approaches, my strengths and weaknesses, *how* to compare and contrast and processes and methods about research methods and philosophy. (C1_NJ) The main ***aim*** of the research is to acquire student understanding and views on the matter and also enlighten to them *how* they can use their smartphones to help with their academics. (C1_SS) I knew that if I commit myself to a group I would have been under a great pressure because I would have to work towards the goal of meeting group's expectations and set ***targets*** and as well as mine and therefore tend to neglect the other commitments that I had to fulfil. (C1_TJ) Daily or weekly goals would ensure us to reach ***target*** and this will make the overall assignment easier to accomplished. (C2_MG)

				I decided to set myself a high ***target*** this year even though I always was a student that got 50's. (C4_CK) What will happen is that when they do not reach their ***targets*** or complete their tasks, they will be regarded as incompetent and will get verbal and written warning that will ruin their reputations and in turn find it hard to get employment. (C4_AM) We are currently working mostly in groups at this stage and the lecturer, as I've mentioned before, will give us an idea of what we need to do as a group in order to help make our research plausable and relevant to our ***targets***. (C4_NM) The core ***goal*** of this module is NOT to be taught *how* to do a literature review, a summary, a synthesis or to conduct a research or survey, because no one taught us that in class. Rather, this module trains you and assesses *how* much of that work can we do for ourselves without being pushed or directed by a lecturer. (C4_KM) My future ***goals*** from hence forth is to do something that is uniquely me. (C4_VN) My ***goals*** have not changed, I still want to get my Honours, I still want to be a business analyst but my reasons have changed. (C4_LL) My ***goal*** for the day was to complete the introduction. (C1_WAE) I learnt *how* to work with group members from different walks of life and *how* to find common ground with them when seeking a common ***goal*** – which was the contribution we needed to make towards the final research of the module. (C4_NM) At the start it was a struggle reading a various amount of articles and trying to understand specific concepts etc. *How*ever after this research process I know that I'm capable of doing further research evens though I know I will struggle at time I also know *how* to push myself to the final ***objective***. The struggle/challenge created excitement and room for growth as an individual. (C3_YH) ***Objective*** for the document is to find the current standing of student about the research methods and different philosophies in Information Systems. This has been done by following a specified procedure. (C4_MM) The overall ***objective*** is to learn as I am a student. My approach was to learn from the experience rather than the traditional text-book centric form. I just went with what I knew as did not know many research techniques. We had talks on conducting research but we hardly ever focused on analysing research.C3_CH)

Quint.	Cat.	Top.	Reflection Propositions	Empirical Observations
III	***Planning***	***Expectations***		This course benefit me in other ways that I never ***expected***, it helped me learn more about myself, how to work with others, how to cope with situations, the mindset to have, it contributed towards myself growth. (C4_MH) My ***expectations*** changed in that at first I thought we would be taught how to do certain thing by the lecturer and so I guess in the past we were being spoon-fed, I now knew that we had to find our way through almost everything and the lecturer was there to just guide us and evaluate our progress, this module taught me independence more than anything, I now knew that self-belief and self-trust were important.(C4_EAT) These ***expectations*** lead me to believe that I would be entering a course that would teach me the basics, from; how to write a research proposal, what research in IT entails, the relationship of IS/IT in research, the accepted philosophies of IS/IT etc. (C4_NM) The course exceeded my ***expectations***, I just ***expected*** to be taught out of the textbook what research is. I got the better deal; I learnt how to do research and what it takes to put a project together. (C4_VN) It was our first assignment to write about us and our backgrounds. I started there to learn something important in this class when the lecture gave feedback of what he ***expected*** of us, to think out of the box. (C4_KM)
III		***Approaches***	RP9. *Reflection* is not confined to this module only as it is an *approach* that other lecturers use.	I have realized a lot about my potential courtesy of this ***approach***. This has differed from other modules in the sense that in other modules we learn the ***curriculum*** and not the real working place dynamics. IFS 352 has made us learn the much more real side of life. (C4_KM) Narrowing down my research helped a lot because now I gained sense of direction on *how* to ***approach*** my topic. (C1_TJ) Therefore the ***approach*** was to understand and to learn *how* to *research* and *how* to benefit from each *process*. (C1_LM) This ***approach*** is learning by doing, not being given a fish, but being taught *how* to fish so that you can do it yourself and teach or assist others along the way. (C4_AM) This teaching ***approach*** has been the best for me. This is mainly because of the opportunity which it has given me to learn something totally different about myself. (C4_XX)

Quint.	*Cat.*	*Top.*	Reflection Propositions	Empirical Observations
III		***Structures***	RP10.1 Reflection allows one to assess one's own abilities without the aid of the *curriculum* or lecturers. RP10.2 Reflection should be introduced earlier in the *curriculum*.	This assignment also made me look at research projects differently to normal projects. It made me go find out about the various formats, methods and ***structures*** that should be used when you forming a research assignment. (C3_HM) I enjoyed the teaching style of this module. I liked the fact that there was no ***structure***. Having no ***structure*** added an element of excitement to the course, not knowing what was going to be the topic of the day, or whether or not we were going to do any work for marks in class. (C4_CK) I think the module needs more ***structure***, even if it is changed continuously. Students in future need to be given a course outline so that they can realise *how* big the exam assignment is as many of us only realised nearing the end of the module. (C4_STS) Certain of us have experienced working for large firms too and have seen *how* ***structure***s, processes and plans are put in place to maintain control and ***structure***. This is what is needed within IFS352. Marks are to be provided on time, communication and relationship building is compulsory for students to trust the lecturer's methods and provision of information. (C4_TLC)

Quint.	*Cat.*	*Top.*	Reflection Propositions	Empirical Observations
III		***Process***	RP8.1 Reflection follows a specified *procedure* by asking the questions what, when, where, with, how, who and why of any situation. *RP8.2.a* Reflection is a *procedure* that allows one to find the reason for one's concerns.	The research ***process*** was a very new and unfamiliar way of completing a task and guidance was necessary to assist the ***process*** operated efficiently and goal determined. Guidance is given to student researchers through interactions from the lectures, direction and advice was given on what to research and how to research. (C2_TLT) Research, what more can i say? It's a ***process*** if anything. A great way to gain understanding but only if you really committed. I am yet to understand the research ***process*** and might never understand all that it entails. (C3_CH) I also learnt various methods and ***processes*** of doing things and methodologies that can be used when doing research. This assignment also made me look at research projects differently to normal projects. (C3_HM) Walter initiated the learning ***process*** during classes. Although most of the actual learning was from doing the work, we learnt as we went along. We were given tasks and some form of guidance, yet we were encouraged to learn for ourselves. (C4_MH) Life and its challenges is an on-going ***process*** – we choose what to become or do. CHOICE is what it boils down to. (C4_TLC) This was such an important part of the research in that it helped me to understand my own thought ***process*** and critically evaluate myself as a learning student as well as evaluate the activities and module that I was involved in. (C4_NM)

Quint.	*Cat.*	*Top.*	Reflection Propositions	Empirical Observations
III		***Planning***	*RP8.2* Reflection allows one to find how {unscripted, improvised, *unplanned*, unrehearsed} the course was. RP9. *Reflection* is not confined to this module only as it is an *approach* that other lecturers use.	The way Walter taught the class was not conventional to say the least, he had a very relaxed approach to the class and this in turn relaxed me, at times I did feel like he had nothing ***planned*** for the day and ended up going on and on about really pointless subjects. (C4_LLL) He encouraged us to take initiative, be self-directed, think freely and be innovative and creative. He strategically ***planned*** our assignments as well as classes. (C4_MH) ***Plans*** and deadlines does not usually go as ***planned*** therefore it is necessary to take an agile approach most times. (C4_MH) IFS 352 has taught me many things. In a subtle way it has taught me *how* important it is to have a balance in life. Balanced because you cannot live life ***planning*** for every event. There needs to be an element of fun, living in the moment, and just enjoying where you at and taking things at is comes. *How*ever, looking at *how* things went at the end of the semester, I would say that it is important to also ***plan***.(C4_CC) He taught me *how* to be efficient and speed up processes, ***plan*** scenarios if it were to happen this, that or the other way – and that I was able to counter each scenario and be a step ahead. Hence the reason why I would prefer being in control of my academe as well (C4_TLC)

Quint.	Cat.	Top.	Reflection Propositions	Empirical Observations
IV	***Experience***	***Course***	RP10.3 The *class* was life-changing.	Research for me at first (beginning of the ***course***) meant that I would be looking for articles on different academic sites, doing literature reviews, reading up on new terms etc. But in Walter's class research means physically finding things out on your own the whole semester. (C4_QN) The ***course*** is about doing your research on your own and finding out how to do certain *assignments* on your own. YouTube is your best friend in this course. (C4_NTL) The lecturer has been stressing the reasons that it is important to keep a diary of everything that happens in the module, as well as mapping out our progress and methods etc. We then were *assigned* to submit an "extract" of said diary to the lecturer in order to show our progress, as in; where I am in Research towards my final exam, What I am having succcess with, How I feel about myself, How I feel about my group members, What I have learnt so far about myself in the ***course***, and finally – What I have learnt so far about others in the ***course***... (C4_NNN) Unlike other modules where the lecturer follows a stipulated ***course*** outline and tells students what to do throughout the course, this has not been the case with IFS 352. Doing most of the things and *assignments* on my own has made me realize how much I can do on my own and what I can educate myself without being taught by someone else. (C4_KM)
IV		***Teaching***		By pre-defining curriculum or content, we are attempting to anticipate what our students need to know in order to be good citizens, and we ***teach*** them to learn in order to shape their *ideal* future, and by doing so, losing the sacred present for what it is. (EN Reflection (2)) All these questions kept whirling in my mind, but the truth of the fact is that the best *way* to learn something is to ***teach*** yourself and that thing has to be something which you like, truly believe in and stand by it because it is suitable according to the one's *perspective* of life. (C4_KM) Everything that I have learnt about IS Research I had to ***teach*** myself. I often enjoyed not being told what to do; it gave me a sense of finding my own way, although when things remained without *direction* it became extremely frustrating. (C4_STS) This *approach* is learning by doing, not being given a fish, but being taught *how* to fish so that you can do it yourself and ***teach*** or assist others along the way. (C4_AM)

Quint.	Cat.	Top.	Reflection Propositions	Empirical Observations
IV		***Learning***		I have ***learnt*** that there is no one way to ***learn*** during a semester, a lecturer does not have to use presentations and slides to teach followed by the students learning all those slides in verbatim to try and regurgitate them in the exams, rather learning can also be about us (the students) engaging each other's thoughts and experiences. (C4_QN) The core goal of this module is NOT to be taught how to do a literature review, a summary, a synthesis or to conduct a research or survey, because no one taught us that in class. Rather, this module trains you and assesses how much of that work can we do for ourselves without being pushed or directed by a lecturer. To realize how and what exactly you ***learn*** about yourself through doing the *assignments*. The coursework is only included so as to find us work to do on which lecturers can assess our ability to work on our own and educate ourselves effectively. (C4_KM) That is when I wrote my first real *reflection* on a personal note and realized the true value which this module has given me, self-identity and realizing how much I can ***learn*** for myself without any instructor. (C4_KM) From week thirteen: That is when I wrote my first real reflection on a personal note and realized the true value which this module has given me, self-identity and realizing how much I can ***learn*** for myself without any instructor. (C4_KM) From the beginning, this very first leadership *experience* had confirmed my belief that students are too spoon-fed from the lecturers and are unable to go out there and ***learn*** how to do things for themselves. Which I believe is vital because that is only when we ***learn*** something. As I firmly agree to Mark Twain's saying "Don't let school interfere with your education". (C4_MH)

Quint.	*Cat.*	*Top.*	Reflection Propositions	Empirical Observations
IV		***Research***	SD6.1 Doing ***research*** does not depend on lecture slides/notes to pass. SD6.2 Doing ***research*** requires one to get the required information and *understand* it yourself. SD6.3 Doing ***research*** practically allows one to *see/prove* that theory comes from practice.	***Research*** for me at first (beginning of the course) meant that I would be looking for articles on different academic sites, doing literature reviews, reading up on new terms etc. But in Walter's class ***research*** means physically finding things out on your own the whole semester. To elaborate on this, it means reading articles and doing further research on them, being given *assignments* and thinking outside the box on how to approach them without being specifically directed what to do, formulating your own strategies on how to best lead a group, participate in a group or deliver as a group. (C4_QN) The *assignments* and all the other work we did where just necessary research skills which we taught ourselves to do. These will work as tools to our post graduate studies, will help us in doing synthesis, literature reviews and summaries. The core goal of this module is NOT to be taught how to do a literature review, a summary, a synthesis or to conduct a ***research*** or survey, because no one taught us that in class. Rather, this module trains you and assesses how much of that work can we do for ourselves without being pushed or directed by a lecturer. (C4_KM) The course is about doing your ***research*** on your own and finding out how to do certain ***assignments*** on your own. YouTube is your best friend in this course. (C4_NTL)

Quint.	*Cat.*	*Top.*	Reflection Propositions	Empirical Observations
IV		***Experiences***	RP11.2 Reflections allow students to draw out what they *learned* from their ***experiences***.	My ***experiences*** with research is limited to forming my own redundant version of someone else's research data. For example; in school they would tell us to go research on a famous historian, and that's what I would do, find *information* on the historian, and give it in as my research. The concept of researching for the purpose of enhancing the knowledge base of a field is something new to me. I hope that in the future we will be doing exercises that will help us practically add to a "body of knowledge". (C4_NM) Being independent also allows one to be able to exercise their process and methods, as in how they understand, interpret and analyse things. I can choose for myself what will affect me and how I can overcome it – based on my independence and ***experiences***. (C4_NM) We all need to learning from our ***experiences*** to avoid repeating the same things over and over again. Students need to evaluate what they have learnt in each and every module/course they do so that they can be able to see what value did that course contributed to the student education. (C4_SM)
V	***Knowledge***	***Order/ Chaos***	Disorder Chaos/Confusion	**Awareness** should be made to ***inform*** students about the destructive nature of technology in classrooms. (C4_MM) Unfortunately they said that they would not be able to because it would cause spam but I will ***inform*** C4_MH and **hear** what we can do. (C4_CC) We were not given detailed assistance on how to carry out this research as the lecturer ***informed*** us **to do** research on how to carry out research. He mentioned that we should use offline or online sources to assist us. This has lead to great ***chaos***, as everyone was uncertain and I became the punching bag as all problems and issues were directed to me. (C4_MH)
V		***Approach***		Narrowing down my research helped a lot because now I gained sense of direction on *how* to ***approach*** my topic. (C1_TJ) Therefore the ***approach*** was to understand and to learn *how* to *research* and *how* to benefit from each *process*. (C1_LM) This ***approach*** is learning by doing, not being given a fish, but being taught *how* to fish so that you can do it yourself and teach or assist others along the way. (C4_AM) This teaching ***approach*** has been the best for me. This is mainly because of the opportunity which it has given me to learn something totally different about myself. (C4_XX)

Quint.	*Cat.*	*Top.*	Reflection Propositions	Empirical Observations
V		***Direction***		Walter showed us all a lot this semester and taught us *how* not to always depend on people to give you ***direction*** because you may not always have it in the working world. (C4_CC) Everything that I have learnt about IS Research I had to teach myself. I often enjoyed not being told what to do; it gave me a sense of finding my own way, although when things remained without ***direction*** it became extremely frustrating. (C4_STS) Again, here was constant confusion in our group since there was a lack of ***direction*** (we did not know what was really expected, what we were going to be marked according to, etc. (how can we be marked if there is no criteria, are our assignments marked on opinion then?).(C4_TLC)
		Stages		I learnt the brainwashed theme also during this *primary* ***stage*** of classes through video clips and class discussions on who we really are. (C4_ZA) The *next* ***stages*** will be data collection, then data analysis and recommendations. A report will then be written based on the gathered information and the already existing information. (C4_AM) The *last* ***stage*** was fusing the articles with my technical report, this was challenging as creating a logical structure and flow for the technical report was confusing at times. (C1_LEM) This review taught me what a literature review is, the ***stages*** and process one goes through when conducting a literature review, why it is conducted, the inputs and outputs of a literature review, it tests if your research is applicable to your study as well as the different ways one can write their literature reviews. (C4_SKP) The research process includes all the ***stages*** involved in the completion of the technical report. The various ***stages*** include getting information, sorting the information, reading, analysing, constructing the technical report, referencing, evaluation and re-adjustment. The research process is a long and draining, mentally and physically. (C1_LEM)

Quint.	Cat.	Top.	Reflection Propositions	Empirical Observations
		Way	RP11.5 Reflections are a *way* to learn. RP11.4. Reflections allow students to *know* what they gained from experiences. RP13.1 Reflections is the best *way* to *find out* how far one has *progressed*. RP13.2 Without reflection one cannot *know* what you have learnt. RP13.2.a Reflections allow one to *know* what one has learnt. RP13.3. Reflections allow one to determine where one is heading as well as how far one has *progressed*. RP13.2 Without reflection one cannot *know* what you have learnt. RP13.2.a Reflections allow one to *know* what one has learnt. RP13.3. Reflections allow one to determine where one is heading as well as how far one has *progressed*. RP14.1 Reflections allows one to evaluate one's enrolment decisions. RP14.2. Reflections are based on the circumstances of activities (the what, when, where, with, how, and who was involved). RP14.1 Reflections allows one to *evaluate* one's enrolment decisions. RP14.2. Reflections are based on the circumstances of activities (the what, when, where, with, how, and who was involved). RP15. Reflections can be started RP15. Reflections can be caused by answering interrogative questions such as who, what, when, where, why and how (Race 2002). RP15. Reflections can be caused by answering interrogative questions such as who, what, when, where, why and how (Race 2002).By answering interrogative questions such as who, what, when, where, why and how (Race 2002).	But then as time passed by I realised that we were reflecting in order to see *how* we have grown throughout this course and *how* our ***way*** of thinking has evolved. (C4_SP) This was also a ***way*** our lecturer could see *how* we have grown and changed in terms of the ***way*** we *think* compared to *how* we *thought* when doing our previous assignments. (C4_SP) This method of working expanded my knowledge changed the ***way*** I think and *view* my work because I am now less pressured to follow rules and boundaries. (C4_QN) I thought that this was a good ***way*** of making sure that I not only was on course with my assignment, but also that I was doing the right work. (C1_EJVW) This was also a ***way*** our lecturer could see *how* we have grown and changed in terms of the ***way*** we think compared to *how* we thought when doing our previous assignments. (C4_SP) The *aim* is to *identify* ***ways*** in which the lecturer can change his/her current way of lecturing. (C4_TL) All these questions kept whirling in my mind, but the truth of the fact is that the best ***way*** to learn something is to teach yourself and that thing has to be something which you like, truly believe in and stand by it because it is suitable according to the one's ***perspective*** of life. (C4_KM) The lecturers and the school *design* a system which shapes us into thinking in a ***way*** which they desire us to think. (C4_KM) Everything that I have learnt about IS Research I had to teach myself. I often enjoyed not being told what to do; it gave me a sense of finding my own ***way***, although when things remained without *direction* it became extremely frustrating. (C4_STS)

Table XII.17 Elements of a critically reflective practice in IS

XII.4.ix Teaching approach

Seq.	Cat.	Top.	Empirical Observations Extract from Teaching Approach
TA1			TA1.1 Analysing students' reflections allow an educator to understand his teaching from the students' perspective. (WU) TA1.2 Analysing students' reflections allows an educator to see what the students thinking is at the time, and what to do next in class. (WU) TA1.3 Acting on students' reflections gives students a say in how a lecturer approaches his teaching. (WU)
TA2			TA2.1 Being 'taught' refers to what students experience in the classroom. (WU) TA2.2 Being taught shapes students into something which they are not. T2.3 Learning for themselves reveals their true nature. Thus to suggest that the way in which we are *taught* shapes us into a forged human being which we are not. Our true nature is shown in what we *learn* on our own. (C4_KM)
TA3			T3.1 '*Teaching'* refers to *what* the lecturer does in class. (WU) T3.2. This approach is interesting as it is not based on PowerPoint. 'Teaching' is a verb that specifies an action and belongs more appropriately to the element 'What'. (WU) I quite enjoy this form of *teaching*, takes the boring elements away of sitting in class and listening to some dinosaur read a PowerPoint presentation. (C3_CH)
TA4			TA4.1 'How' one teaches can be referred to as one's teaching approach, teaching method, teaching style, teaching technique, way of teaching, the 'kind of teaching', the 'form of teaching' or how one 'conducts' the class. (WU) TA4.2 The module was taught in a way that students fail to understand. TA4.3. Tasks had no structure and no length (time) TA4.4 Students had to figure out tasks on their own TA4.5 The module had no course outline. How did lecture *teach* the module? Walter is just another character which I think for the period that we worked with him we cannot define how is he. His teaching *method* I never had it before. He just uses a technique that I cannot even know what is it. The task that are given has no length and sometimes with not even a structure. We had to figure out everything on our own. The module had no course outline that alone was surprising.
TA5			TA5.1 '"Teaching approach' is an adverb and refers to 'How' lecturers teach. (WU) TA5.2 'Teaching approach' refers primarily to the way that the course was structured, the material that was presented in class, (non) prescribed textbooks and also the kinds of discussion that we had in class. (WU)

Seq.	Cat.	Top.	Empirical Observations Extract from Teaching Approach
TA6			TA6.1 The teaching approach was holistic as it covered the academic, the social, the emotional and the mental (cognisant) aspect of student life. This *approach* was holistic and broader in that it covered the academic, the social, the emotional and the mental (cognisant) aspect of teaching to the students. (C4_NM)
TA7			TA7.1 This approach is interesting. TA7.2 The approach covers challenges that graduates face such as the job market. TA7.3 The issues discussed in class are all relevant to student's lives. TA7.4 It was frustrating for some of the students to do some of the assignment as they needed to find out everything by themselves. I found this *kind* of teaching as the interesting type of lecturing. During the lecture we used to discuss the challenges that we will be faced when looking out for jobs in the market. The issues discussed during the lecture beside the research project were all relevant to our daily lives. However, in most the time it was very frustrating to doing some assignments as we had to find out what everything by ourselves. (C4_MM)
TA8			TA8.1 Students had become accustomed to be taught in the traditional "talk and chalk" or "death by PowerPoint" way. TA8.2 Students in the class realised that there are different ways in which to learn. TA8.3 This approach fosters learning by engaging students in their thoughts and experiences. TA8.4 This approach is a new way of learning. TA8.5 Students had become accustomed to memorising lecture notes in order to pass their modules. TA.8.6 Students had to change their way of learning in order to become more independent TA8.7 Students needed to find information on their own in order to understand what was discussed in class. TA8.8 Students were not taught how to write a synthesis but was expected to do so as part of the final assignment. I have learnt that there is no one way to *learn* during a semester, a lecturer does not have to use presentations and slides to *teach* followed by the students learning all those slides in verbatim to try and regurgitate them in the exams, rather learning can also be about us (the students) engaging each other's *thoughts* and *experiences*. (C4_LD) Another thing and a very important one that I have *learnt* is the new way of learning; I was exposed to another *teaching* and learning method. I was used to lecture notes methods whereby I had to read and even memorise them in order to pass the module. All that had to change as I had to make means on my own as to how to get more enough information and understanding of the material taught in class (independency). For example, in class we did not do or we were not thought how to write a synthesis but we were expected to write it as part of the exam *assignment* or course work. (C4_SM)

Seq.	Cat.	Top.	Empirical Observations Extract from Teaching Approach
TA9			TA9.1 Topics ranged broadly and consisted mainly of discussions between myself and the students. (WU) TA9.2 Discussed topics such as students getting to know who they are, and what they want out of life. TA9.3 Discuss topics such as trying to fit into society, be accepted or admired because of ones achievements or other people's measures of success Things such as getting to know who you really are and what you really want before paying R20 000 for the year and forcing yourself to see how well you can remember a hundred definitions. Trying to force yourself to fit in to society, to be accepted, and adored because of your achievement based on someone else's measurements and go ahead. (C4_CK) TA9.4 The approach was free styled TA9.2 The topics discussed in class were from real-life and not a textbook. TA9.3 Topics were eye-opening TA9.4 Students needed more structure TA9.5 Students were excited to go to class to hear what was going to be discussed TA9.6 Lectures were exciting as a result of the lecturer's style and way about him. I say this because I loved that this module was so different and that a lot of it was *free styled*. I liked that the lessons learnt in class was not out of a book, but reality and an eye opener. On the other hand I found that I needed some structure. (C4_CK) Something which came very early in the course was almost excitement to actually go to class and hear what new things were lectured about. And this is due to Mr. Uys' *teaching style* and his overall way about him. (C2_YS)
TA10			TA 10.1 One learns to teach by example (Schön) TA10.2 A casual approach fosters reflective learning. TA10.3 The course made a (positive) difference in students' lives. Part of the reason why I used this new approach was due to the informal (bordering on casual) approach that was introduced to me by Prof Ngwenyama's visit to my class and which I built on. (WU) The only reason why I learnt all this stuff I am discussing is because of the *casual* nature of the module, if it was just as *formal* as all the other lectures then it will not have stood up to make the difference which it has made in my life. (C4_KM)
TA11			TA11.1 The lecturer played numerous videos on the way that society has been brainwashed, the inefficiencies of the education system and the extent to which social norms are deluding the masses. TA11.2 These videos helped in affirming students prior beliefs At the very beginning of the semester, the lecturer had played numerous videos regarding the level which society is brainwashed, the inefficiencies of the education system and the extent to which social norms are deluding the masses and others which have affirmed my beliefs that I had prior to the module. (C4_MH)
TA12			TA12.1 The lecturer played a key role in exploring the philosophical roots of societal problems. TA12.2 Reflecting on our taught beliefs is crucial in achieving liberation from societal influences. TA12.3 Reflecting on how one is influenced by society allows one to start living a free life.

Seq.	Cat.	Top.	Empirical Observations Extract from Teaching Approach
			Walter played a key role in assisting me to find out the cause of these problems by introducing his philosophies and perceptions that concern the root of these problems. The idea of stepping back, reflecting and unwinding our taught beliefs and examining the extent to which we are being continuously indoctrinated by society is crucial in making a positive change around and influencing our lives positively as well as enabling us to actually "start living our own lives with our own thoughts".(C4_MH)
TA13			TA13.1 The lecturer had a very relaxed approach to teaching which in turn relaxed the students. TA13.2 The lecturer appeared as if he had nothing planned for the day, resulting in pointless discussions at times, TA13.3 The lecturer was teaching us to question things TA13.4 Sometimes the topic got boring if the discussions went on for too long. TA13.5 Students are used to being told what to do in class. TA13.6 By being told what to do and when to do things means that students are controlled by lecturers. (WU) TA13.7 Students have difficulty in coping with not having any structures. TA13.8 The more stressful things become, the more structure students need. TP13.1 There appears to be a tendency to consider 'higher' education as a serious (decorous) affair and one may gain some benefits, especially in an African context to relax one's approach to teaching. (WU) The *way* Walter taught the class was not conventional to say the least, he had a very relaxed approach to the class and this in turn relaxed me, at times I did feel like he had nothing planned for the day and ended up going on and on about really pointless subjects. I understand he was teaching us to question but sometimes he dragged a topic for too long and lost my attention along the way. (C4_LLL) I did not like it and it did not work for me. I am someone that like *structure*, even if it lets me feel as if I am in a prison. With structure I know what to do and when. (C4_TLT) I was able to handle the *approach* of not having any *structure* because I enjoy being able to work the way I feel best, but the more stressful things got the more structure I needed and less confusion I needed. Many other students were unable to handle this because they were too used being told what to do at all times. (C4_STS)
TA14			TP14.1 Students can be sensitised to how they are being moulded by others by pointing out the fundamental differences between reflective approach and the other courses that they were attending. TA14.2 The teaching approach was not only centred on academics such as other courses TA14.3 Students were able to engage with these discussions in a meaningful way which helped them to make sense of their own experiences. That is when I had my own realisation. The realisation being that the teaching approach was not only academically centred such as the other *approaches* I was exposed to. We were able to explore all of these aspects in each lesson and engage in a meaningful way – which in turn helped us with our (own) research methodologies. (C4_NM)

Seq.	Cat.	Top.	Empirical Observations Extract from Teaching Approach
TA15			TA15.1 The lecturer kept the discussion centred on philosophical issues such as individuality, race, gender, religion or any other current topic that may come up for discussion. TP15.2 This approach is aligned to the radicalist philosophy where the role of the educator is to teach students to reflect critically on their circumstances and how this has constrained their thinking. I tried to keep the topics to philosophical issues (as this was a class in Research Methods and Philosophy), and would also discuss personal issues such as individuality, race, gender, religion and any other topic that may come up for discussion. This is in keeping with the radicalist philosophy of education, where it is the educator's role to encourage students to critically reflect on their own circumstances and how these have constrained their thinking and ability to act freely. "The focus of education is on bringing about a new social order by changing the structures of society and liberating the individual from a false consciousness which is unaware of the structural and historical forces which have domesticated her/him. Reflective thought and action (praxis) are seen to be dialectically related." (Saddington, 2000)
TA16			TP16.1 The very act of teaching in institutions that have been part of the hegemony may confuse the students i.e. you are saying that education controls our thinking, yet you are teaching us in the same system. TP16.2 This requires constantly alerting students that they should not dogmatically believe anything, including the lecturer. TP16.3 By alerting students to not believe everything they are being told, is the same as telling them to take responsibility for their own learning.
TA17			TA17.1 Free discussions in class stand in stark contrast to 'traditional approaches' of keeping to the subject. TA17.2 The lecturer should have a personal relationship with the students in order not to alienate them. What I enjoyed the most about IFS 352 is the teaching *style* of the lecturer. I liked that the *style* was very casual and relaxed, but very interesting, challenging and thought provoking. I also liked the relationship that he had with his students. I liked that the relationship was more personal than that of other lecturers who alienated us more than anything. (C4_CK)
TA18			TA18.1 Free questioning in class does not accord well with other academics or staff (unless the faculty is philosophy). TA18.2 Students need to be alerted to the sensitive nature of discussions in class and supported to share these ideas in a responsible manner. TA18.3 Lecturers run the risk of being alienated by other lecturers as a result of their teaching, should students discuss sensitive topics with them out of context. TA18.4 Lecturers need to be particularly aware of discussing sensitive topics such as race, religion, culture or beliefs Now unless the faculty is Philosophy, this kind of questioning does not accord well with other academics or staff. I am aware that students would discuss some of their concerns with friends or even other academics or administrators, and unless these staff are informed about the reasoning behind such discussions, there is a risk that they might judge or even condemn such practices. I was always careful not to isolate any particular race, religion, culture or beliefs and freely listened to the ideas that students had, even if they were in direct contradiction to mine.

Seq.	Cat.	Top.	Empirical Observations Extract from Teaching Approach
TA20			TA20.1 Diverse yet informal classes where anyone could share their opinions was effective for some students. TA20.2 This style of teaching should be implemented in more courses. TA20.3 Students gave their best for this module. These diverse, yet informal classes where everyone could give their opinion and work really hard definitely worked for me. I really wish they could implement this *style* of teaching in more courses as it is really effective. I will really miss this module dearly, it is definitely that one module I really put my all into and I thoroughly enjoyed. (C4_SKP)
TA21			TA21.1 The module was taught in a unique way. TA21.2 The lecturer needs to have a good relationship with the students in the class. TA21.3 There is a great difference in attitude and work-ethic of students if the lecturer knows their students by name. TA21.4 Students have learnt how to teach others by what they learnt from the lecturers approach. TA21.5 Unless student are sensitised to why the lecturer does certain things in class, they may just adopt these practices blindly, without considering the consequences. You taught the module in a way I never experienced before from a lecturer. You ensure there is a good relationship amongst you and the class. It's always good to have a good relationship with all your students. As a tutor, I see a great difference in attitude and work ethic from students when you know their name and when you do not. I have learnt lessons from you and applied them to my own teaching *approach*. (C4_CJR)
TA22			TA21.6 Lecturers need to be cognisant of the effect that their practices may have on other staff and academics. TA21.7 Things such as Not having lessons planned or not using PowerPoint may be questioned by 'traditional' academics. TA21.8 Lecturers need the support of their seniors if they wish to adopt a radical teaching approach TA21.9 Lecturers need to side with the students and be a champion for their causes. As a simple example, lecturers who don't have a lesson planned or the necessary PowerPoint presentations or even a textbook would be strongly questioned in most traditional academic institutions. Fortunately, I had the support and blessing of my HoD at the time, but this was to change when he left the institution. Fundamentally however, I took the students side in most matters, and was seen as a champion of their own struggles to make sense of their world. (WU)
TA23			TP23.1 I had high expectations for my students. TP23.2 Excellence needs to be recognised and rewarded For example, in the first year I made a point during the class of recognising excellence, and gave a 8gb flash drive for the best *individual* observation to C3_MJ, lunch for the best group Literature Review, and a free flight in my aeroplane for the top researchers in the first smartphone questionnaire.

Seq.	Cat.	Top.	Empirical Observations Extract from Teaching Approach
TA24			TA24 Teaching is a construct of the mind that limits the practice thereof. TA24.2 Teaching is something that happens in 'the moment' TA24.3 In waking this morning, I realised that I don't need to teach anymore. No need to drag others to their salvation. Learning from OJ, that even teaching or the concept of teaching is a construct of the mind.
TA25			TA25 Trusting in the moment is an important aspect of a reflective practice *I guess trust is important, in that if I don't trust the moment, I try and create my own version of what I believe it should be.*
TA26			TA26.1 True reflection is not thinking about ones' practice but seeing one in one's practice. TA26.2 We miss seeing situations for what they really are by trying to fit them to our preconceived ideas. TA26.3 By misinterpreting the moments that we experience causes us to blame others for our own circumstances. TA26.4 We miss out on appreciating the beauty of a moment by trying to change the circumstances to fit our preconceived ideas of what it should be. TA26.5 By being scared to face the music, we make our own tunes to dance to. TA26.6 By being uncertain allows us room to learn and grow from our circumstances. TA26.7 By being too confident of ourselves, we only learn what we think we know, and miss the lessons that the moment is providing. True reflection is not thinking about your practices. It is about seeing yourself in your practices. Too often we want to make a situation fit our preconceived ideas of what it is supposed to be, and by doing so, we miss what it really is. Then we can always blame someone or something for the situation not being what it is supposed to be. Sometimes we are quick to try and change the circumstances to suit our view of what it should be, instead of appreciating the moment for what it is, in all its ugliness or beauty. By being scared to face the music, we make our own tunes to dance to. By being uncertain, we allow ourselves the room to grow and to learn from what is emerging from a given set of circumstances. By being too confident of ourselves, we only learn what we think we know, and miss the lessons that the moment is providing.
TA27			TA26.8 By being present in the moment allows the educator to do the right thing at the right time for the right reason. (phronimon) TA26.9 By being present in the moment teaches students that the educator is there for them. As I realised before, I don't need to teach, I just need to be present, and do what is required in the moment!!! If this means talking to them about writing, then so be it.[190]

[190] See Evernote Reflection: Learning to teach 18/3/2013

Seq.	Cat.	Top.	Empirical Observations Extract from Teaching Approach
			This spilled over to the students in that they learned in more ways than one that I was there for them, and that I just expected them to be present. Well for starters our lecturer Walter played a big role in my learning through his unique teaching method as well as his passive personality and *being there* for everyone, keeping us motivated. (C4_ZA)
TA28			TA28.1 A reflective practice requires one to be in the moment and trust one's intuition. A28.2 Reflective practice is a process of regular practice, trusting one's intuitions, acting on them, finding out more about them, reflecting on these concepts and sharing it with others. Trust your intuition…So what is intuition, and how does it work? Also while running, thought about the methodology for a reflective practice as follows: 1. Regular practice i.e. set time aside for your research/practice like practicing the piano 2. Trust your instincts/intuition or go with the flow (Sprite: Obey your thirst) 3. Act on your intuitions (depending if reflective practice or abductive/inductive) 4. Inquire about concepts 5. Explain actions based on the best possible explanation (Inference to the better explanation) 6. Reflect on these actions 6. Write it up/share it with other's OR SOMETHING LIKE THIS.
TA29			TA29.1 Lecturers need to sensitise students to being present so that they can learn to give all tasks and activities their full attention. TA29.2 The use of analogies and examples can aid in this process. Walter also emphasized that we should focus on the "*now*" by giving the current task or activity at hand full *attention* and not allowing our minds to drift or be clouded with thoughts which are irrelevant to the situation at hand and cause a distraction. The example he mentioned which is quite effective in helping me is the one related to a boxer or a martial artist, when he/she is in a fight – and if full *attention* is not given, even for a split second there could be major consequences which could possibly lead to downfall. Likewise, in life we got to take the same approach with our endeavours. (C4_MH)
TA30			TA30.1 This approach encourages students to attend classes otherwise they miss out on 'the moment'. Moreover, with Walter's teaching method I could not be able to bunk the class because I knew that if I am not in class there is no way that I would get what was done in class unlike other modules in which I would access lecture note whether I *attended* the class or not. (C4_SM)

Seq.	Cat.	Top.	Empirical Observations Extract from Teaching Approach
TA31			TA31.1 The lecturers' role in guiding the students becomes transparent to the students. The other reason is because the students are so busy examining their own lives (invisible) One of the reasons why the students could not figure out my teaching approach, is that I had stopped teaching at this stage, and was just being present in the moment with them, acting on my intuitions.
TA32			Intuition is seen as the process of contemplating or "looking inside", and can be seen as a process of acquiring knowledge without the use of inference or the use of reason (intuition in M-W, 2017; Wikipedia, 2017)
TA33			TA33.1 The lecturers teaching style is unique. TA33.2 The lecturer did not use a course outline. TA33.3 The lecturer did not prepare any topics for the class TA33.4 The lecturer did not set any dates for tests or assignments. TA33.5 The lecturer was silently confident in his approach. TA33.6 Many students may find this approach disconcerting as they don't know what to expect. TA33.7 The message that the lecturer conveyed was not to be dependant or a prisoner of the system, take responsibility, free one's mind, take control, and become leaders of tomorrow. TA33.8 This approach required a significant amount of thinking and reasoning. TA33.9 By challenging students views in class, they learn more about each other without any judgement. TA33.10 The lecturer treated everyone fairly and allowed them their own opinions. *Walters' teaching style* was unique, strange and quite effective in my opinion. No course outline, no topics to prepare for (even though I hardly do that), no dates set for assignments or tests. Just showing up and living in the moment. This was really inspiring and really something completely new to me. Had it been I teaching this course (and I laugh out loud with the thought of me teaching), I would have been stressed. However, Walter was quite passive and displayed a sense of confidence in what his teaching method. Many students would be upset at this very situation as they do not know what to expect, but the message was clear: Not to be dependent or to live as prisoners of the system, to take things into our own hands and become who we are by freeing our minds and taking control, becoming the leaders of tomorrow. And this was also one of the reasons that made me interested to actually be in class, as it required most of the time my thoughts and my opinion. And as our different views were challenged in class, we learnt more about one another, without any conflict or any desire to be the most correct one. In Walters' classes everyone was entitled to an opinion and fair treatment. Something I totally appreciated and motivated me to be in his class. (C4_ZA)
TA34			TA34.1 I helped the students to help themselves *Walter is a person who helps you help yourself. (C4_KK)*

XII.4.x Effects of learning experiences

Material Cause (Change)	Formal Cause (Form)	Efficient Cause (Experience)	Final Cause (End Result)
Assignment	The layout was a challenge; the structure was specific in the *assignment* instructions however, I faced limitations with the headings provided. After reading the article on how to write a literature review and a methodology (Levy and Ellis, 2006) thereafter I was left confused.	There were three main *problems* that I *experienced* during the course of completing the literature review as an assignment	I felt forced to research other examples and layouts which lead me to using the article "Guidelines on writing a first quantitative academic article (Kotzé, 2007).Secondly, the tense of writing and lastly the style was a problem to grasp since, academic writing all forms part of the third party writing. (C4_NNT)
Survey	During the day of handing out of the *surveys*… if you tell them about free-bees or competitions they are immediately eager	I *experienced* another type of learning mainly outside on campus, *it is not easy to approach people*	But if you tell them about free-bees or competitions they are immediately eager. I also found that for me it is easier to approach females, because some look warm and they are always walking in groups so I could finish five surveys at a time. (C4_QN)
Report	I learnt many things in the creation of the *technical report*.	This *experience* has *opened my eye to some my strengths and weaknesses* that I can work on in the future.	I learnt about how to conduct research and using peer reviewed articles. I learnt that planning and time management is important. I learnt how to use criticism to my benefit. By using what other people say about my technical report I opened my eyes to my own faults. (C1_NEM) I leant that thinking critically can also be a distraction. I learnt how to improve my academic writing style, by proper in-text and end-text referencing with the help of refworks. I learnt that I am easily distracted and have a short focus period.
Research Report, information	I got frustrated a lot because of not getting the right relevant *information*	I have *experienced* to do the whole report research alone which was another learning step for me	That has taught me to be very patient and learn how to do research alone.
Groups, Communication, WhatsApp	The group *communicated* via mail and smartphone messaging app called WhatsApp, we kept in touch even if the topic was not about IFS 352.	This kept the group together and we all had things in common which made the *experience* awesome. (C3_1M)	Communication was a building block, we made sure to listen to each members view point before we agreed upon something.

Material Cause (Change)	Formal Cause (Form)	Efficient Cause (Experience)	Final Cause (End Result)
Group Work, Tasks	Overall we all worked well together (as a group) and delivered all the tasks required.	at one point we *experienced* a clash of personalities where a group member felt like her ideas were not being valued or respected by another group member	So as a group leader I had to step in and mediate and to most importantly highlight how everyone's ideas were invaluable to the group.
Teaching style	All the other lecturers follow a course outline, they have dates set before the semester starts, they have a good idea of when assignments are due and they don't ask the students what to give them next.	I have never *experienced* this teaching style.	I really enjoyed it as I felt that my opinion was being considered and it gave me the opportunity to think on my own and this allowed room for initiative. It does leave the students confused sometimes but this gives us room for initiative. (C4_NLL)
Research	Nothing can prepare you for the challenges of having to complete a research report and the stress that comes along with it.	My *experience* through this whole research was both rewarding and a bit scary at the same time.	I learnt to overcome hurdles and learnt how to think critically and concentrate while still paying focus. So I have learnt it is better to take every day as it comes and every challenge that comes with it. (C1_SM)
Research, Direction, Guiding, Teaching	Because from primary school I was used to getting *direction* from my teachers from them *guiding* me along the way and I never needed to do as much research besides research on projects because the way you needed to do the assignment or what you needed to do was told to you.	This way of teaching was a different *experience* for me… but sometimes it was frustrating that we needed to do research on everything and weren't given direction to some things that we maybe should have	For the most part I think it helped me and opened my eyes to how things should be done and showed me that you can't be spoon fed all the time But I'm glad in way to have gone through the *experience*. (C4_NCC)
Group work	We had to go through an actual survey processes and actual literature reviews which would contribute to our lecturers' work.	Instead of regular lectures, we would have open discussions in class and learn from each other's *experiences* and *challenges* that we faced.	We were also placed into groups and these groups would basically be our support structure in this course, we had to learn how to manage and deal with each other which added to the experience of an unconventional class. (C4_QA)

Table XII.18 Cause and Effect of the Experiences

XII.4.xi Teaching students to become self-directed

What does it mean to teach - in this way? Organising the chaos	
	P1. Teaching refers to what one teaches in the classroom. This refers mainly to the subject matter that lecturers deliver and what students experience in the classroom (TA3.1, TA2.1) P2. Teaching is a construct of the mind that happens in the moment and cannot be explained (TA24.1, TA24.2, TA4.2,26.1) Being taught shapes students into something they are not. (TA2.2) P3. How one teaches is referred to as ones' teaching approach' (TA4.1, TA5.1) P4. A Teaching approach refers to how the course was structured, the material that is presented and the style of delivery (TA5.2 P5. My approach is unique and interesting (at least to this group of students) (TA3.2, TA7.1, TA21.1, TA33.1) P6. It is based on a radicalist philosophy of adult education (TA12.2, TA15.2) P8 For me this means to critically reflect on how organisations are structured to dominate our thinking, a philosophy which I shared with my students in the classroom (TA12.1, TA15.1) P7 This requires the students to critically reflect on their own social conditioning. TA2.3, TA12.3) which required a significant amount of thinking and reasoning (TA33.8) and allowed them to realise their freedom (TA12.3) Learning for themselves reveals their true nature (C4_KM) Thus to suggest that the way in which we are taught shapes us into a forged human being which we are not. Our true nature is shown in what we learn on our own. (C4_KM) P8 This means the student is set free to be whomever they want and not what society expects them to be. (TA26.TA28,2) P9 This approach is based on the human being free to choose his own salvation and trusting in the moment (TA27.1, TA27.2, TA28.1, TA28.2) P10 Trusting in the moment means I am in touch with my own intuition, trusting them and acting on them (TA25.1, TA28.1, TA28. 2). By acting on them we expose our vulnerabilities and learn to grow from our circumstances. P11 This allows me to intuitively doing the right thing, at the right time, for the right reason. (TA27.1) P12 This is represented in the classroom as the freedom to express myself in whichever way I choose. (TA9.4) The students respond in turn by recognising that I'm there for them. (TA27.2) Well for starters our lecturer Walter played a big role in my learning through his unique teaching method as well as his passive personality and *being there* for everyone, keeping us motivated. (C4_ZA) P13 It is also expressed in the classroom as a critically questioning all structures, rules, processes or schedules that constrain ones' freedom. (TA14.1, TA29.1, TA29.2, TA33.7) P14 This was done by sensitising students to these constraints by playing the students videos (TA11.1, 11.2, TA14.1), free and open classroom discussions (TA9.1, TA15.1, TA1, TA17.1), challenging students views (TA33.9), treating everyone fairly and valuing their opinions (TA33.10), and maintaining personal relationships with them (TA17.2, TA21.2, TA21.3) P15 The discussions were based on holistic issues from real life such as the social, emotional and mental aspects that were relevant to students' lives (TA6.1, TA7.3, TA9.2), issues of race, gender, religion or any other actuality of the time and not just centred on academics (TA15.1, TA14.1, TA17.1, TA20.1,TA6.1,) but also on challenges that students faced (TA7.2), fitting into society (TA9.3), who students' are and what they want out of life (TA9.2). P16. This made the classes interesting (TA9.3,9.5,9.6) and compelled students to attend classes (TA30.1), participate in discussions (), question things (TA13.3) and generally work harder than they had ever done before (TA20.3).

	P17 Teaching students how to reflect, by actually reflecting with them in class in a relaxed environment, and making regular reflections as part of the assignments allowed not only me to view things from their perspective, but also for them to gain a better understanding of themselves (TA1.1, TA1.2, TA1.3, TA8.3, TA10.2TA13.1, TA13.2) P18 Giving the students assignments to do allowed them to learn for themselves without any guidance except for their own reflections and discussions that they had in their groups and in class (TA8.7, P19 In practice this resulted in no structures to the course , no course outlines, no plans, no structures to the tasks…(TA4.3, TA4.5, TA33.3, 33.4), requiring students to constantly try and figure out what was happening and how to approach things. P20. Problem is that students are used to being told what to learn or do in class and have difficulty in coping with no structures (TA9.4, TA13.5, TA13.7, TA13.8, TA33.6) Quote on freedom + rigour on doing assignments. P21 Refer to Whitehead's freedom and Discipline (See Jones, 2007) P22 I was able to handle the approach of not having any structure because I enjoy being able to work the way I feel best, but the more stressful things got the more structure I needed and less confusion I needed. (C4_STS) P24 This created a strong dialectical opposition between the relaxed classroom environment were the students could share anything, versus the tough task or assignment environment where they needed to plan, structure and conduct the research assignment (TA13.8). P25 This became frustrating at times, as they were required to do and find out everything themselves (TA7.4, TA8.8). This means that students had to change their (old) ways of learning to the new way of becoming more independent ((TA8.4, TA8.7) The *experience* gained and the knowledge gained in this research is not quantifiable. What I have learnt has made me *aware* of the *responsibilities* I poses, not only in submitting the assignment but in reality. (C1_AP) P.26 In this process the role of the lecturer became transparent (TA31.1) and the students become engrossed in their own lives of actually living the experience (TA10.3,TA26.1) True reflection is not thinking about your practices. It is about seeing yourself in your practices. P27. It is at this stage that the lecturer becomes part of the group and learns together with the students (all teaching ceases) and everyone is acting together for the common goal.
So what? Or what are the outcomes or benefits	
	Don't teach… Students are able to learn on their own Waiting to be taught is a barrier Lecturer should focus more on the learning aspect *One can learn through reflection* Students can be guided through an informal manner Students can learn by following other examples Groups become a support structure Students learn from groups and the process Management teams teaches students how to organise themselves Being in a research team teaches one to design one's own research Students learn how to trust their own instincts Teach Students to become independent learners

Implications for implementation	P28 Students as well as other academics took notice of these activities. (). P29 The problem is that they do not necessarily understand what I did certain things in the classroom, and therefore adopt the outward appearances (or the explicit traces (Nonanka) that remains (TA21.5). P30 It may also mean that traditionalist may not understand why these practices such as not having any course outlines, textbooks or lesson plans occurred (TA18.1, TA18.3, TA21.7) and may either ignorantly adopt these practices or condemn them as "loose cannons" (TA18.1, TA18.3, TA21.6). P31 This meant that students and academics attempted these practices in their own situations (TA10.1, TA21.4). P32 Students also need to be alerted to the sensitive or critical nature of such teaching (TA14.1, TA16.1, 16.2, 16.3, TA18.2, TA18.4). This is why the educator also needs to educate students on the choices or actions that I take so that they can understand the "method behind the madness" (TA22.1, TA22.2 TA22.3)). P33 Some students may also not agree or be able to adapt to such an approach and may remain critical and demand structure and rules (TA13.6) I did not like it and it did not work for me. I am someone that like *structure*, even if it lets me feel as if I am in a prison. With structure I know what to do and when. (C4_TLT) P34 For these reasons, a critically reflective practice requires good support from ones' senior structures as well as learn to stand up for one's students (TA21.8, TA21.9. Quote from Prof
	Much like a conversation that can head in any direction. The only difference is that this conversation extended over a period of three years and included discussions on how to do the research assignments.

XII.5 Students assignments

XII.5.i Representative Seminar Assignments

Assignment	Description	Week	Where	When	Who	How	Length
Assignment 1	Personal Introduction	Week 1	Before or in class	1H30	Ind.	Essay	1-2 pages
Students are asked to write a short biography of themselves, including their academic/extramural achievements, their major, why they are doing IS and their expectations for the course. They are also asked to include the results of their previous year's studies.							
Assignment 2	Reflection on Student Life	Week 2	In Class	1H30	Ind.	Essay	1-2 pages
Students are asked to write a short essay on their experience as a student at the institution. They are given free-reign to focus on any particular aspect. An important component of this assignment is for them to provide a reflection on their experiences. The essay needs to be structured with a 1. Introduction, 2. Experiences, 3. Reflection and 4. Conclusion.							
Assignment 3	Empirical Observation	Week 3	On Campus	1H30	Ind.	Essay	1-2 pages
Students are asked to conduct a 30-minute empirical observation at a convenient location somewhere on campus. Students are advised to be impartial to their observations, engage all their senses and take notice of everything that is happening around or with them. They are allowed to take notes, photographs, videos and even voice clips should they so wish in order to aid them in their analysis. The assignment needs to be structured with a 1. Introduction, 2. Observations, 3. Methodology, 4. Theories in use, 5. Conclusion.							
Assignment 4	Theories in IS	Week 4	Take home	2 Week	Grp. (5-6)	Present	10-15
Students in groups of 3-6 were asked to conduct a literature review on one of the theories that are used in IS, and present a summary of their findings to the class. They are asked to provide a general overview of the theory, detailed theoretical constructs, where these theories are used as well as the philosophical, ontological and epistemological basis for these theories. The starting point for their review is the list of IS theories at BYU (https://is.theorizeit.org/wiki/Main_Page).							
Assignment 5	IS Research Methods and/or Philosophy	Week 6	Take home	2 Week	Grp. (5-6)	Present	10-15 min
Students in groups of 3-6 are asked to present on a research method/methodology in IS. The presentation needs to cover the background/history, philosophic/ontological/epistemological perspective, advantages/disadvantages, types of research, seminal authors etc. of the methodology. At a minimum the students need to cite 10 relevant peer-reviewed articles (from scholar.google.com), and include them in their reference list.							
Assignment 6	Individual Summary/Group Synthesis	Week 8	Take home	2 Weeks	Ind./ Grp.	Summary/ Synthesis	1-2 pages
For this assignment, groups of between 3-6 students are provided with a seed article on the major research theme. These can be structured around the introduction, background, research problem, literature review, theoretical basis, research methods, data analysis methods etc. Students are asked to find a related article on their topic/area of research and write a summary of that article. The group then discusses the summaries and come up with a synthesis for the topic/area of research.							

Assignment	Description	Week	Where	When	Who	How	Length
Assignment 7	Exam/Individual Assignment	Week 10	Take Home	4 Weeks	Ind.	Individual essay/ Conference paper	6-10 pages
Students in Y1&2 who chose not to participate in the group research project, were asked to conduct a literature review of 2000 words or more on a topic of their choice based on peer-reviewed articles. They were required to apply all the skills that they learned during the course, including a reflection at the end of the essay. In Y2 it was 10 teams of between 4 and six students. The groups of students could compile their research project as a mini-dissertation or as a research article based on a template that we provided. In Y3 the entire class was divided into 20 teams of 5 students each researching different aspects of the same topic. The different areas are available on request.							
Assignment 8	Individual Report	Week 12	Take Home	2 Weeks	Ind.	Reflection	3-5 pages
During the first class, students were asked to keep a research/reflection diary. Mid-term they were asked to submit a reflection up to that point. For their exam assignment, students were asked to reflect on the entire course in terms of what they did and learned during the course, where and when their tasks and activities occurred, what tools and resources they used, how they did their tasks and assignments and how they experienced the process, and lastly who was influential in their learning, what they learned about themselves, and more importantly whether the course met their expectation, how their expectation had changed during the course, and what this growth/change meant for them.							

XII.5.ii *Research assignment 1: Conducting a literature review*

Primary Objective: Understand the ethical issues raised during the process of conducting research.

Secondary Objective 1: Understand the philosophical principles of academic writing and publishing in IFS, and be able to apply them.

Secondary Objective 2: Be able to find and evaluate information critically for research purposes

Secondary Objective 3: Be able to interpret and use research output in IFS

Secondary Objective 4: Be able to cite and reference articles appropriately

Some Definitions:

Lathrop and Foss (2000) in " Student Cheating and Plagiarism in the Internet Era: A wake-up call" define the following

Cheating (p116) "If you had any help that you don't want your teacher or parents to know about, you probably cheated". This includes having others re-write work that you have copied off the internet, submitting other's assignments (from a previous year etc.), submitting the same or similar assignment from one module or course for another module etc.

Plagiarism (p116) "If you didn't think of it and write it all on your own, and you didn't cite (or write down) the sources where you found the ideas or the words (yourself), it's probably plagiarism" This includes not having read the articles that you are citing (so that you can verify to see if the author has the correct interpretation), or in formulating your own study design, as well paraphrasing other authors words to have the same meaning, sentence length or sentence construction i.e. changing a few words here and there.

Aim: Conducting a literature review

Purpose:

The primary purpose of the assignment is to develop your understanding of the ethical, moral and social issues raised during the process of conducting research, by exposing you to methods that students use to cheat and plagiarise articles from the internet and presenting it as their own. This is a practical assignment, and you are required to participate as a student/researcher in attempting the assignment in order to understand how to plagiarise, so that you may learn how to avoid plagiarism when you conduct your final exam assignment.

For this particular assignment, you will not be penalised for plagiarising or cheating (in fact the better you plagiarise, the higher your marks), however you need to be honest in what you did in order to plagiarise and/or cheat by explaining this in Section 2.

You are allowed to use any tools or means at your disposal in order to complete this assignment, including asking a friend to do it for you, copying other's assignments etc., using other's work etc. however you have to acknowledge how you did it in the second section. Furthermore for this assignment only, as it is a research assignment on plagiarism and cheating, you will not be subject to the SAU plagiarism policy IF you sign the waiver, and acknowledge all sources appropriately in the 2nd section. You do not need to submit the 2nd section of your assignment to TurnItIn.

The secondary purpose of this assignment is for you to familiarise yourself with the process of conducting a Literature Review in Information Systems. Please refer to the paper on Eteaching by Levy and Ellis on "A Systems Approach to Conduct an Effective Literature Review in Support of Information Systems Research". Also note that you have to study this paper and the one on "Is google making us stupid" for your spot test in March.

Topic: Mobile technology in education

Some of the terminology that articles may refer to are e-education, m-education, e-skills, e-competencies, e-teaching, e-learning, edtech, distance learning, blended learning etc.

The technologies include multi-media, smartphones, mobile phones, tablet computers, mp3 players, smartboards, video and voice recorders, PDA's, podcasting etc.

You are required to conduct a literature survey on mobile technologies in education on any of the following broad topics, or on any related topic that you might find.

Advantages of mobile technologies for education inside/outside the classroom

Disadvantages of mobile technologies for education inside/outside the classroom

Use of mobile technologies in schools

Use of mobile technologies in higher education

Instructions for Section 1:

1. You are not required to develop your own literature review, or produce original work.

2. You are required to copy an existing article from the internet, newspaper, journal or library, and submit it.

3. You must try and disguise the fact that the article is not your own work (see tips below)

4. You must record the steps and efforts that you have gone through in disguising the article

5. In the method section, you have to disclose the full sources of the articles that you are copying/plagiarising, using appropriate referencing according to the APA convention. See the guide uploaded to Eteaching or any other guide for more details.

6. You need to include the plagiarism declaration provided, and not the usual SAU one in your assignment,

7. You may submit your assignment to TurnItIn as many times as you require in order to reduce your TurnItIn score. The final score on the closing date will be your score.

8. Marks will be allocated for the final score as well as the steps/approach that you followed.

9. The article must be between 2000 and 300 words or between 8-10 pages 1 1/2 spaced times new roman.

Instructions for section 2

1. Please record all the steps that you took in order to search for your article, what you did in copying and refining it to reduce the TurnItIn score.

2. Please provide a reflection on the process in terms of what you thought when you first heard of the assignment, what concerns you may have had, how you went about doing the assignment, how you feel after you completed it etc.

3. Also include your perceptions on plagiarism at SAU, when is it OK to plagiarise or copy others work (include copying papers and photocopying of textbooks), having someone else do your assignments for you or buying research papers online, paying someone to do your research, having your parents or friends helping you with your assignments, and what you feel about students cheating/plagiarising.

Tips for plagiarising:

1. You may use any internet source, newspaper, library book, thesis etc. to copy your article from.

2. You may use any help or assistance in completing Section 1, such as your parents, friends, the writing centre, working in groups etc. however you are all required to submit your own individual assignments.

2. The less likely that the article is in the public domain, or in the English language, the better your chance of success in getting a low TurnItIn score, so typing something from an old book, newspaper etc. might get a lower score.

3. You can use any of the online sources for theses/student papers, however don't spend money you can ill afford in buying a paper e.g.

http://www.affordablepapers.com/

http://www.slate.com/articles/life/shopping/2001/12/adventures_in_cheating.html

http://www.academictermpapers.com/

http://www.academicwritinghelp.com/

http://www.customwritings.com/academic-writing.html

http://essayacademia.com/draft.php

http://www.bignerds.com/

http://www.schoolsucks.com/

4. You can use Google translate to translate a paper from German, French, Afrikaans, Xhosa or vice-versa.

5. Submit the article to TurnItIn and get the score. Look at the sections that are highlighted, and paraphrase or chance these. Resubmit to TurnItIn. It takes about 12-24 hours after the first time, as someone needs to visually check the paper to confirm it is a revised paper.

6. Do not submit the template or any SAU outline or the plagiarism declaration to TurnItIn, as it will increase your score. The best is to copy/paste just the article into a blank word document, and submit it to Tii.

Disclaimer/Waiver

Please include the following plagiarism declaration in your assignment:

GENERAL PLAGIARISM DECLARATION – IFS352 (2013)

1. I hereby declare that I know that plagiarism entails the use of another person's work and to present it as my own without attributing the sources in the correct way. (Refer to University Calendar part 1 for definition).

2. I know that plagiarism is a punishable offence because it constitutes theft.

3. I understand the Plagiarism Policy of the EMS Faculty of the South African University.

4. I know what the consequences will be if I plagiarise in any of the assignments for my course.

5. I declare, therefore, that this work presented is my own EXCEPT for Section 1 which is an assignment to plagiarise purposefully, and as indicated in section 2 where I will outline how I made use of other's work, and attribute those articles according to the APA citation format.

Chapter Outline:

Section 1: Please change the heading to reflect the title of your topic.

Sub-headings: Change to reflect your paper.

References: Include the references of the plagiarised articles.

Section 2: Research Methodology

Introduction: Introduce the assignment

Research Methodology: How did you go about finding and using the articles

Reflection: Reflect on the process as indicated in the Instructions for Section 2

References: Include proper references INCLUDING the original sources for the papers that you copied from in section 1.

Please use the template for your assignment as uploaded to ETeaching.

Due Date:

The final article is due on Monday 4th March 2013 at 9h00am. Late submissions will be penalised by 10% per day. No further assignments will be accepted after the 10th March. Only students with a valid medical or other reason for the entire period of the assignment, i.e. 17/2/2013-4/3/2013 will be given an extension.

Marks:

The total marks for the assignment which will count towards your CAM is 20%.

Consultation:

There will be no consultation on this assignment, unless the instructions are contradictory or not self-explanatory. If you do ask other SAU academics or staff to assist, please provide them with the full assignment instructions as provided here with no modification, including the plagiarism declaration, so that they can understand the full scope of the assignment.

Regards and best of luck
Walter Uys
Lecturer

IFS352 Research Methods and Philosophy

Walter Uys	**Total mark**	100
17 February 2013 - 0:00	**Percentage of year mark**	20%
22 April 2013 - 12:00	**Assignment type**	Upload
On	**Email on submission**	Off

XII.5.iii Assignment instructions as issued by the management team

Hello Everyone,

I hope you are all well.

This email serves to inform everyone on their topics of research. There have been slight changes to some group topics, so make sure you read the email carefully.

All groups are required to conduct a **literature review only**, and do not have to formulate questions.

The Management Group together with the assistance of Walter and a few others, will be responsible for formulating questions.

Also, I have been getting queries on uncertainties regarding the "literature review",

"A **literature review** is a text written by someone to consider the critical points of current knowledge including substantive findings as well as theoretical and methodological contributions to a particular topic. Literature reviews are secondary sources, and as such, do not report any new or original experimental work" – Wikipedia.

Please address any queries to your group leader.

DUE DATE: Friday, 26th April at 17H00.

We will be assessed on this task, as it contributes to our continuous mark, and late submissions will be penalized, 20 percent for each day late as mentioned by Walter.

There are two documents attached; the survey used for the previous study, and the other is on the theoretical frameworks. They are also available on Dropbox. Let's take a look at the tasks required:

1) **Framework groups**

Group	**Leader**
3	C4_SP
4	C4_QA
9	C4_QN
19	C4_MM
12	C4_AM
13	C4_FM

Our **primary framework** for our study is the "Theory of Real Behaviour", that you will find information about in the document named "Pardeep_MastersThesis-1" as the whole thesis is on the development of this theory.

This document is attached to this email and will be available on Dropbox.

We want to know all about this theory, its constructs (take a look at **4.2 Research model** according to the index **page 27**), and how it was developed. We need to know enough to use it as a framework for our project and challenge it.

Write a literature review on this framework and make mention briefly of secondary IS frameworks that you think will be suitable for our study.

Remember we are not focusing on the behavioural and psychological aspects. We focused on the actual interaction and usage of smartphones.

2) **Survey Groups**

As for you guys, the aim of this task is to get an insight into each of these categories, to know enough in every category in order to formulate questions.

You are not responsible for formulating questions.

· **Costs** (voice costs, data, sms etc. across all networks) – Group 5 (**Kholofelo Kekana)** and 10 (**Stacy Small**)

· C**ategories** of applications (**productive apps** – word, PowerPoint / **instant messaging apps** – Facebook, twitter and all the different categories) – 11 **(Zahid Ameerodien)** and 16 **(Yonel Dyonese)**

· **What** are smartphones used for (communication, in case of emergency, learning etc.) – 8 **(Patricia Mangwayana)** and 6 (**Cailla Lategan)**

· **How** are smartphones used (sms, voice calls, searching internet, games etc.) – 14 **(Lunga Delubom)** and 18**(Kelvin Murenga)**

· **When** are smartphones used (time of day) – 2 (**Ethel Teni)**

· **Where** are smartphones used (in lectures, at home, on the go, while shopping, taking a smoke break etc.) – 15 **(Vuyiswa)**

·The **elements** of **Biographical Information** pertaining to **students** (Level of study, course undertaking etc.) – 17 **(Thando Ziwele)**

·**Why** do students use smartphones (reasons for usage) – 1 **(C4_TLT)**

3) **Marketing Plan and Actual Marketing– Chelsea Cable**

I am glad we are all on the same page now.

Anyway, I hope you all have a nice weekend.

*****The finest steel has to go through the hottest fire - Richard Nixon***

Regards, C4_MH

XII.5.iv Exam assignment rubric

Group Number	**Survey %**	**Group%**	**Comments**

Individual Contribution (50%). Criteria: As outlined in marking rubric.								
Student	**#**	**Comments**	**Survey (20%)**	**Group (30%)**	**Ind Article (10%)**	**Ind Research (20%)**	**Ind Diary (20%)**	**Total (100%)**

Survey (20%)	**Percentage**	**Description**	**Incomplete or Not Attempted 0-2**	**Adequate 3-4**	**Above Average 5-6**	**Very Good 7-8**	**Excellent 9-10**
Questionnaires	10%	Separate submission					
Survey	10%	Chapter 7					
Group Assignment (30%)	**Percentage**	**Description**	**Incomplete or Not Attempted 0-1**	**Adequate 1-2**	**Above Average 2-3**	**Very Good 3 - 4**	**Excellent 4-5**
Academic Standards	5%	Group Submission					
Context	5%	Abstract, Chapters 1 and 10					

Article Synthesis	5%	Chapter 3					
Literature review	5%	Chapter 4					
Collaborative Work	5%	Chapter 5, 6 and 8					
Data Analysis/Group Work	5%	Chapter 7, 8 and 9					

Group	Percentage	Description	Incomplete or Not Attempted 0-2	Adequate 2-4	Above Average 4-6	Very Good 3 – 6-8	Excellent 8-10
Questionnaires	10%	All questionnaires completed, Complete responses, Properly bound and documented	Not Attempted or partially attempted	Some surveys, surveys incomplete	Most surveys, inconsistencies with data	All surveys, consistent data, poorly presented	All surveys, Data consistent, well presented and bound
Survey (Chapter 7)	10%	Survey description, Survey Methodology, Challenges, Appropriate Examples/ Pictures	Not attempted or partially attempted	Brief description of survey and methodology	Appropriate description of survey, outlining methodology	Appropriate description of survey, outlining methodology, key learnings	Appropriate description of survey, outlining methodology, original contribution
Group	Percentage	Description	Incomplete or Not Attempted 0-.5	Adequate 1-1.5	Above Average 2-2.5	Very Good 3 - 3.5	Excellent 4-5
Presentation/Format/Layout /Academic Standard/ Literacy/Referencing	5%	Presentation/Layout/ Ethics/ TOC/ Spelling/Grammar/ Originality/referencing	No assignment submitted, only partial assignments, or not part of the group or not signed. Serious errors in spelling errors, syntax errors,	Assignment only (2 summaries and synthesis), Spelling errors, syntax errors, punctuation errors, grammatical errors makes the article difficult to read	Assignment, Plagiarism Declaration signed, definite spelling and grammatical errors, different style (paraphrasing)	Assignment, Plagiarism Declaration, TOC, some spelling and grammatical errors, some variation in style	Assignment, Plagiarism Declaration, TOC, Tables and Figures articles, Well Presented, Minimal to no spelling and grammar errors, consistent style

			punctuation errors, grammatical errors with incoherence in style, mainly due to a high level of plagiarism.	or incomprehensible due to inconsistency and a mix in styles and sentences.			
Group	Percentage	Description	Incomplete or Not Attempted 0-.5	Adequate 1-1.5	Above Average 2-2.5	Very Good 3 - 3.5	Excellent 4-5
Context/ Abstract/ Introduction/ Conclusion (Chapter 1 and 10)	5%	Clear Context and introduction to the study, Comprehensiveness to the abstract, and succinct conclusions	No Introduction, Abstract or conclusion	Student introduces the assignment or provides a conclusion	Provides either an abstract that provides an overview of the assignment, an introduction that introduces the topic or a conclusion that highlights what was found.	Provides an introduction that introduces the topic and a conclusion that highlights what was found.	Provides an abstract that provides an overview of the assignment, an introduction that introduces the topic and a conclusion that highlights what was found.
Group Article Synthesis (Chapter 3)	5%	Appropriate selection of topic, abstract, introduction and conclusion, integration of concepts, consistent use of language and grammar.	Student did not attempt this part of the assignment or plagiarised this section in large parts either by too many quotes and no referencing.	Paraphrased material and appropriately cited. Significant number of quotes. Weak summary due to excessive usage of opinions, lack of coherence	Original material correctly quoted and cited. Summary is coherent but paragraphs are disjointed. Good overall structure and reader has	Original material cited and correctly referenced. Coherent summary with good understanding of topic. Minimal or no	Original material cited and referenced. Summary is informative, provides reader with adequate information. Topic is well understood,

				and sentence structure.	partial understanding of literature.	quotes. Clear connection between paragraphs. Reader has a good understanding of the literature.	paragraphs all tie in together. Reader has excellent understanding of literature. Overall structure has been adhered to.
Group	Percentage	Description	Incomplete or Not Attempted 0-.5	Adequate 1-1.5	Above Average 2-2.5	Very Good 3 - 3.5	Excellent 4-5
Group Literature Review (Chapter 4)	5%	Appropriate selection of topic, abstract, introduction and conclusion, integration of concepts, consistent use of language and grammar.	Student did not attempt this part of the assignment or plagiarised this section in large parts either by too many quotes and no referencing.	Paraphrased material and appropriately cited. Significant number of quotes. Weak summary due to excessive usage of opinions, lack of coherence and sentence structure.	Original material correctly quoted and cited. Summary is coherent but paragraphs are disjointed. Good overall structure and reader has partial understanding of literature.	Original material cited and correctly referenced. Coherent summary with good understanding of topic. Minimal or no quotes. Clear connection between paragraphs. Reader has a good understanding of the literature.	Original material cited and referenced. Summary is informative, provides reader with adequate information. Topic is well understood, paragraphs all tie in together. Reader has excellent understanding of literature. Overall structure has been adhered to.

Group Activities and Minutes (Chapter 5 and 6)	5%	Describing Group research Activities, Effort of Contribution, Noting of events and activities, Accurate minutes and Reflection	Did not attempt this part, or minimal description of group activities	Highlights of group activities with no minutes	Minuted group activities, Outlies activities and experiences and attempts a reflection of the process	Detailed description of group activities, accurate minutes. Attempts to formulate learning and contribution to the overall project.	Significant contribution to research project. Detailed description of group activities, accurate minutes and identifies learning and contribution
Group	Percentage	Description	Incomplete or Not Attempted 0-.5	Adequate 1-1.5	Above Average 2-2.5	Very Good 3 - 3.5	Excellent 4-5
Group Collaboration/Data Analysis (Chapter 8 and 9)	5%	Analysis of survey data or additional description of specific group activities particularly if group was assigned a task	Did not attempt this section, or some aspects of analysis and group tasks.	Detailed analysis of data or group assignment	Accurate representation of data, attempts analysis.	Accurate representation of data and analysis	Accurate representation of data and analysis. Derives significant findings.
Individual Contribution	**Percentage**	**Description**	**Incomplete or Not Attempted 0-2**	**Adequate 2-4**	**Above Average 4-6**	**Very Good 3 – 6-8**	**Excellent 8-10**
Individual Article (10%)	**10%**	Appropriate topic, well summarised, use of own words and style, well structured, linking between paragraphs, concise summary of article.	Student did not attempt this part of the assignment or plagiarised this section in large parts either by too many	Paraphrased material and appropriately cited. Significant number of quotes. Weak summary due to excessive usage	Original material correctly quoted and cited. Summary is coherent but paragraphs are disjointed. Good	Original material cited and correctly referenced. Coherent summary with good understanding	Original material cited and referenced. Summary is informative, provides reader with adequate information.

			quotes and no referencing.	of opinions, lack of coherence and sentence structure.	overall structure and reader has partial understanding of literature.	of topic. Minimal or no quotes. Clear connection between paragraphs. Reader has a good understanding of the article.	Paragraphs all tie in together. Reader has excellent understanding of article. Overall structure has been adhered to.
Individual Research (20%)	**20%**	Accurate account of what, where, when, how, with, how and who of research project.	Little to no evidence	Vague descriptions about experiences	Accurate descriptions about experiences	Accurate descriptions about experiences. Able to establish connections between learning and coursework	Establishes original thoughts and insights into the experiences and are able to link these to individual growth.
Individual Diary (20%)	20%	Organisation, structure, literacy, critical thinking, reflection,	No attempt, limited information, no clear structure, poor language usage	Partially attempted, some structure, some errors in language,	Nearly comprehensive account of activities, consistent structure, well written with some language errors.	Coherent account of activities, well structured, minimal errors or omissions.	Well-written, well-organised, demonstrates critical thinking, excellent detail, new ideas introduced.
Comments							

Chapter XIII Quotations and commentary

[i] "We conclude then that definition is (a) an indemonstrable statement of essential nature, or (b) a syllogism of essential nature differing from demonstration in grammatical form, or (c) the conclusion of a demonstration giving essential nature" (Aristotle, APo, 94a10-12).

[ii] Apologies in advance (caveat emptor or reader beware). At this point in my thesis, which is occurring at the end of a long period of inquiry, I beg the reader to afford me some academic liberty (freedom) to speak my mind, both in terms of the quality of my sources and the rigour of my writing. These should be evaluated not based on the weight of empirical evidence which typically does not exist at the start of a project, but to the degree that they ring true in both the readers' minds and in the practice of Higher Education, especially in SA. Aspects such as rigour and quality of sources are aptly demonstrated in other parts of this thesis. At this point I am attempting to establish my perspective (thesis) on the matter based on general perspectives and definitions, and not on specialist or expert views on the matter, as the whole point of writing the thesis is to become an expert in the matter, and not start out as an expert. For those wishing a formal statement of why I have these perspectives, I have provided such as an statement in Greek at the end of the introduction.

[iii] "Now each man judges well the things he knows, and of these, he is a good judge. And so the man who has been educated in a subject is a good judge of that subject, and the man who has received an all-round education is a good judge in general. Hence a young man is not a proper hearer of lectures on political science; for he is inexperienced in the actions that occur in life, but its discussions start from these and are about these; and, further, since he tends to follow his passions, his study will be vain and unprofitable, because the end aimed at is not knowledge but action. And it makes no difference whether he is youthful in character; young in years or the defect does not depend on time, but on his living, and pursuing each successive object, as passion directs. For to such persons, as to the incontinent, knowledge brings no profit; but to those who desire and act in accordance with a rational principle knowledge about such matters will be of great benefit" (Aristotle, EN, 1095a1-10).

[iv] "Many … students are demanding free access to and funding for university education, and future policy is as yet unclear" (Herman, 1995:271).

[v] "The enrolment of students at SAU increased more than threefold between 1980 and 1991, while financial subsidy and other resources increased at a slower rate. Class sizes have increased tremendously and there are concerns about quality of teaching and research" (Herman, 1995, 270).

[vi] "The two major challenges facing South African universities as firstly admitting larger numbers of students from the `disadvantaged majority', and secondly to offer education of quality" (Gerwel in Herman, 1995:271).

[vii] "The state subsidy formula…determines that funding will not only depend on the number of students enrolled but also on the number of students that pass at the end of the year. The HBUs have a high failure rate because of their lack of resources and the fact that their students are largely drawn from disadvantaged communities" (Omar, 2000:7).

[viii] "There is a strong thread in the programmes that would indicate that it is the lecturer, the curriculum and the university that need to change, not the student" (King in Herman, 1995:271).

[ix] "The importance of writing for shaping students' cognitive processes is now well established after extensive research in this area over the last four decades … and yet…discipline specialists seldom take this into consideration when planning their courses. This means that academic literacies components are often added on after the course design process is completed with no thought given to curriculum alignment or to conceptualising writing assignments as part of the content of the course, so that students can learn from writing about this content" (Paxton and Frith, 2013:172).

[x] For example, in the IS 2010 curriculum (Topi et al., 2010) there are no mention of the development of research skills. In the IS 2002 curriculum, Gorgone et al. (2002) highlight a number of analytical and critical thinking graduate characteristics, yet do not directly address research skills or preparation for postgraduate research.

[xi] A common definition for SDL *"refers to both the external characteristics of an instructional process and the internal characteristics of the learner, where the individual assumes primary responsibility for a learning experience"* (Brockett and Hiemstra, 1991).

[xii] "Is there any evidence to suggest that teaching strategies employed in the classroom do promote critical reflection? The answer is unclear (Ecclestone, 1996; Graham, 1995; James and Clarke, 1994; Mackintosh 1998 and Wilson, 2013)" in Stein (2000).

[xiii] These rules may have been appropriate at the time that they were formed, but were more than likely formed through parental, school or even peer influence. When they remain unexamined, or when one blindly applies these 'rules' to new situations where they are not effective, results in 'blind' spots or avoidance tactics. The problem is that these results are part of one's nature or habits and it is easier to spot them in others than it is in yourself. Ironically even if others are able and willing to point out one's blind spots, these are frequently met with resistance or even anger or frustration.

[xiv] The emphasis is on 'pleasant survival' and aimed at dealing with immediate demands. Teaching practices may be highly routine with no or minimal consideration of the theoretical basis thereof. Reporting or researching their practices would be mainly recollection of events together with associated thoughts and feelings.

[xv] Elsen et al. (2009) propose a number of interventions for strengthening the teaching-research nexus in the curriculum, specifically interventions such as group assignments, research projects, workshops and training on specific research skills, as well as presenting their research to other students and the department.

[xvi] "Consistently and overwhelmingly, the evidence showed that experts are always made, not born" (Ericsson, Prietula and Cokely, 2007:4).

[xvii] An easier to follow (yet not as academically rigorous) alternative is the four stages of competency by Burch (1970) of 'unconscious competence', 'conscious competence', 'conscious incompetence' and unconscious competence'. (In Four stages of competence, Wikipedia, 2012).

[xviii] "Imitation and the joy derived from it are natural to human beings since childhood…and human beings differ from other animals in that they are the most imitative and learn their first lessons by imitation" (Aristotle, Poet 1448b2-3) (in Haskins, 2000).

[xix] Referring to these theories here does not mean that I was either aware of these educators at the time, nor that it influenced my teaching practices as a novice educator. This only occurred during the process of inquiring about my own teaching. As an example, Habermas was introduced to me during my PhD coursework at UCT in 2010, and Freire by the Faculty librarian in 2011 when I discussed with her some of the challenges that I was having in the classroom. It is therefore highly unlikely that I would have been exposed to this kind of literature either by my colleagues or through my undergraduate or even postgraduate education. As a novice I may have initially fallen back on my experiences as a student, however due to bad teaching encounters as an Engineering student, I did not adopt the same poor practices, yet there were many good practices from educators that I had been exposed to during my education that I would have unconsciously adopted. In this way I was particularly lucky to have attended UCT and exposed to the teaching approaches of some of the lecturers there.

[xx] As part of our PhD training, we were tasked by Prof Ngwenyama to develop the habit to act and reflect all the time, until it became second nature to us. These are the essences of praxis, which require one to become conscious of one's own actions and situations in the world (Gramsci in Lather, 1986). For me, inquiry started when I experienced some challenges with supervising a group of four Master's students and trying to develop a syllabus for them to aid them in writing their dissertations. At this stage I had already read a lot about critical theory, and emancipatory research, but did not yet realise that I was following a praxis approach.

[xxi] "General statements that provide direction or intent to educational action…usually written in amorphous terms using words like: learn, know, understand, appreciate, and these are not directly measurable" (Wilson, 2013).

[xxii] "Statements of educational intention which are more specific than aims. They may be [stated] in either amorphous language or in more specific behavioural terms" (Wilson, 2013).

[xxiii] "Are usually specific statements of educational intention which delineate either general or specific outcomes" (Ryle, 1949).

[xxiv] These kinds of questions have structural implications for how classrooms are or should be arranged in terms of a 'procedural approach' to learning. "For example, a classroom in which a teacher is lecturing to passive students seated in rows would seem to be quite inappropriate" (Smith and Lovat, 1991:132).

[xxv] It should be noted here that most discussions of Aristotle's virtues do not include the two other virtues of Sophia (Philosophical Wisdom), and Nous (Intuitive Wisdom) (NE, 1139b12-14), the minor intellectual virtues of Deliberation, Understanding and Judgement (NE, 1142a30-1143b17), as well as the moral virtues such as courage, temperance etc. (NE:1105b22).

[xxvi] There are a number of prior studies that have examined the curriculum against either Habermas' knowledge-constitutive interests (Grundy, 1987; Herr and Anderson, 2005; McKernan, 1996), the practical, technical and emancipatory (Carr and Kemmis, 1986; Eikeland, 2012; Eikeland, 2007), Aristotle's (EN, 1139b12-14) intellectual virtues of techne, episteme and phronesis or the philosophical paradigms of Burrell and Morgan (1989) of positivist, interpretivist and critical such as Carr (Grant and Ngwenyama, 2003; Iversen, Mathiassen and Nielsen, 2004). There are broad overlaps among these three differing approaches, yet they all appear to be rooted in Aristotle's' gnoseology.

[xxvii] "at the same time we are seeing and have seen, are understanding and have understood, are thinking and have thought…we are living well and have lived well, we are happy and have been happy" (Met: 1048b22-25).

[xxviii] Squires (Stein, 2000) re-emphasises this position due to the plethora of teaching approaches claiming to be Aristotelian inspired Praxis and contends that they have been influenced by modern conceptions of Praxis as outlined by Marx and the Frankfurt School and not from Aristotle's philosophy itself.

[xxix] "Let it be assumed that the states by virtue of which the soul possesses truth by way of affirmation or denial are five in number, i.e. art, scientific knowledge, practical wisdom, philosophic wisdom, intuitive reason; we do not include judgement and opinion because in these we may be mistaken" (EN, 1139b15-20).

[xxx] Different interpretations in translation of the Greek terms for action and good action as praxis/phronesis, the lack of similar words in English and the obscure nature of the terms all contribute to the confusion about which terms to use (Faure, 2013:51). Squires (2010:2) suggest that Aristotle himself changed the way that he uses the term phronēsis/praxis between the early and latter parts of Ethics and that it only finds its true expression in the Politics.

[xxxi] "The philosophical arguments and insights appropriated for this purpose included Ryle's distinction between 'knowing how' and 'knowing that' (Ryle, 1949); Gadamer's reconstruction of the Aristotelian concept of 'practice' (Gadamer, 1980); Polanyi's theory of 'tacit' knowledge (Polanyi, 1958, 1966); Oakeshott's notion of 'practical knowledge' (Oakeshott, 1962, 1971); and Habermas' account of practical reasoning (Habermas, 1972, 1974)". (In Carr, 2006:4).

[xxxii] "Educational action is a species of praxis in both an Aristotelian sense and a post- Marxian sense: in the first, it involves the morally informed and committed action of the individual practitioners who practise education; in the second, it helps to shape social formations and conditions for collectivities of people" (Kemmis, 2010:9).

[xxxiii] "To insist on maintaining a dichotomy between praxis and poesis in practice is ...a utilitarian mentality... (leading us)...to categorize all activities as either productive or non-productive and to ignore our capability to participate in both" (Guy, 1991:289).

[xxxiv] The term phrónêsis has become widely used in the literature, and is thus more meaningful than the English translation of 'prudence' which refers to the "suitability for bringing about a desired result under the circumstances" but has attracted the biblical connotation of a 'prudent' woman or wife referring to a 'considering, instructed, wise, skilful and understanding' woman (http://aboverubies.org/index.php/ar-devotional-archives/latest-women-s-email-devotional/1176-the-prudent-wife-part-1-no-328)

[xxxv] "The present inquiry does not aim at theoretical knowledge like the others (for we are inquiring not in the order to know what virtue is, but in order to become good, since otherwise our inquiry would be of no use), we must examine the nature of our actions, namely how we ought to do them; for these determine also the nature of the states of character that are produced" (EN, 1103b26-30).

[xxxvi] "Practical wisdom is concerned about the variable ways that can be achieved by action" (EN, 1141b6-12). "Phronēsis is concerned with both universals and particulars, but is of a practical nature, although particular action should be preferred" (EN, 1141b16-22).

[xxxvii] In modern discourse, people do not refer to good or bad action or virtue and vice. More contemporary terms for virtue are excellence, success, achievements, and for vice it is challenges, issues or even failure.

[xxxviii] "Hence also it is no easy task to be good. ~for in everything it is no easy task to find the middle (mean) ... e.g. to give or spend money; but to do this to the right person [Who], to the right extent [Which], at the right time [When], with the right motive [Why], and in the right way [How], that is not for everyone, nor is it easy; wherefore goodness is both rare and laudable and noble" (EN, 1109a25-30).

[xxxix] "The end, then, being what we wish for, the means what we deliberate about and choose, actions concerning means must be according to choice and voluntary. Now the exercise of the virtues is concerned with means. Therefore virtue also is in our own power, and so too vice" (EN, 1113b1-5).

[xl] "Similarly with regard to actions also there is excess, defect, and the intermediate. Now virtue is concerned with passions and actions, in which excess is a form of failure, and so is defect, while the intermediate is praised and is a form of success; and being praised and being successful are both characteristics of virtue. Therefore virtue is a kind of mean, since, as we have seen, it aims at what is intermediate" (EN, 1106b22-28).

[xli] "In everything that is continuous and divisible it is possible to take more, less, or an equal amount, and that either in terms of the thing itself or relatively to us; and the equal is an intermediate between excess and defect" (EN, 1105a25-30).

[xlii] "For temperance and generally every virtue is the best state, and the best state lies in the attainment of the best thing, and the best thing is the mean between excess and defect; for people are blame worthy on both grounds, both on that of excess and on that of defect" (Aristotle, MM, 1191b1-5).

[xliii] "But up to what point and to what extent a man must deviate (from the mean) before he becomes blameworthy is not easy to determine by reasoning, any more than anything else that is perceived by the senses; such things depend on particular facts (elements), and the decision rests with perception" (EN, 1109b20-24).

[xliv] "The explanation of how the ignorance is dissolved and the incontinent man regains his knowledge, is the same as in the case of the man drunk or asleep and is not peculiar to this condition; we must go to the students of natural science for it" (EN, 1147b5-8). "For the animal nature is always in travail, as the students of natural science also testify, saying that sight and hearing are painful; but we have become used to this, as they maintain" (EN, 1154b6-8).

[xlv] "That moral virtue is a mean, then, and in what sense it is so, and that it is a mean between two vices, the one involving excess, the other deficiency, and that it is such because its character is to aim at what is intermediate in passions and actions" (EN, 1109a20-25)

[xlvi] "a man should have practical wisdom not for the sake of knowing moral truths but for the sake of *becoming good*, practical wisdom will be of no use to those who (already) are good" (NE1143a28-30).

[xlvii] "I suggest that future readers of this passage of Aristotle's Nicomachean Ethics, and especially commentators and translators, bear this revision in mind, as it not only illuminates Aristotle's work, but also clarifies the history of a rhetorical trope often used, not only by classical and medieval writers, but even by journalists and jurists today" (Sloan, 2010).

[xlviii] http://www.thesecretweapon.org/the-secret-weapon-manifesto/setting-up-the-secret-weapon

[xlix] "There is likely no end to the arenas in which the *circumstances* have been used" (Sloan, 2010:250).

[l] "Naturally, one may wonder at the outset whether Aristotle could have relied on a single method in his inquiries across so many different fields – from his logical investigations in the Organon to his study in the practical (ethics and politics) and productive (rhetoric and poetics) areas, the theoretical inquiries into nature and the first principles of Being (mathematics, treatises on nature, metaphysics), and so on." (Anagnostopoulos 2009:101).

[li] "Aristotle's reviews of endoxa (common opinion) are the essential first step in a specific philosophical method based on the assumption that the truth on a given subject is immanent in and restricted to endoxa" (Mcleod, 1995:1)

[lii] Endoxa (ενδόξα) are 'opinions that are generally accepted' explained as "generally accepted by everyone or by the majority or by the philosophers-i.e. by all, or by the majority or by the most notable and illustrious of them" (Top, 100a20-24). The more correct modern term would be "knowledge" as 'opinions' are not 'generally accepted' as true statements anymore.

[liii] "For people who are puzzled to know whether one ought to honour the gods and love one's parents or not need punishment, while those who are puzzled to know whether snow is white or not need perception." (Top, 105b5-7)

[liv] A third and later development is Pragma-dialectics which has deeper roots in the extensive use of speech act theory (Krabbe, 2013:73)

[lv] "To many dialectic is identified with the notorious triad 'thesis-antithesis-synthesis,' which is, in turn, associated with Marxism, despite the fact that this formula was popularized by Fichte, never used by Hegel, and seldom employed by Marx (Mueller, 1958; Lichtheim, 1970)" (in McNall, 1979:215).

[lvi] Wikipedia for example refers to the early stages of dialectics as 'Naïve Dialectics' as it relied primarily on "intuition and personal experience with limited supporting scientific evidence" and falsely ascribe the first complete system of dialectics to Hegel. In fact, the abuse against the system of reasoning on which dialectics is a cornerstone, i.e. casuistry has been thoroughly documented (Jonsen and Toulmin, 1988). With terms such as 'circumstances', 'opinion', 'wish', 'contingent', 'appearance', 'image', 'common sense', accident', etc., one would be hard pressed to find any scholar today that would give dialectics a fair chance.

[lvii] "all statements that seem to be true in all or in most cases, should be taken as a principle or accepted position; for they are posited by those who do not also see what exception there may be." (105b10-12)

[lviii] "Moreover, all statements that seem to be true in all or in most cases, should be taken as a principle or accepted position; for they are posited by those who do not also see what exception there may be" (Top, 105b10-12).

[lix] "We should select also from the written handbooks of argument, and should draw up sketch-lists of them upon each several kind of subject, putting them down under separate headings, e. g. 'On Good',

or' On Life '-and that' On Good' should deal with every form of good, beginning with the category of essence." (Top 105b12-15).

[lx] "In the margin, too, one should indicate also the opinions of individual thinkers, e.g. ' Empedocles said that the elements of bodies were four': for any one might assent to the saying of some generally accepted authority." (Top, 105b17-19)

[lxi] "It is useful also to make them by selecting not only those opinions that actually are accepted, but also those that are like these, e.g. The perception of contraries is the same '-the knowledge of them being so- and we see by admission of something into ourselves, not by an emission' ; for so it is, too, in the case of the other senses; for in hearing we admit something into ourselves; we do not emit; and we taste in the same way."(Top, 105b2-10).

[lxii] "As regards the number of senses a term bears, we must not only treat of those terms which bear different senses, but we must also try to render their definitions" (Top, 106a1-5)

[lxiii] "It is useful to have examined the number of meanings of a term both for clearness' sake (for a man is more likely to know what it is he asserts, if it has been made clear to him how many meanings it may have), and also with a view to ensuring that our reasonings shall be in accordance with the actual facts and not addressed merely to the term used. For as long as it is not clear in how many senses a term is used, it is possible that the answerer and the questioner are not directing their minds upon the same thing: whereas when once it has been made clear how many meanings there are, and also upon which of them the former directs his mind when he makes his assertion, the questioner would then look ridiculous if he failed to address his argument to this. It helps us also both to avoid being misled and to mislead by false reasoning: for if we know the number of meanings of a term, we shall certainly never be misled by false reasoning, but shall know if the questioner fails to address his argument to the same point; and when we our- 30 selves put the questions we shall be able to mislead him, if our answerer happens not to know the number of meanings of our terms. This, however, is not possible in all cases, but only when of the many senses some are true and others are false. This manner of argument, however, does not belong properly to dialectic; dialecticians should therefore by all means beware of this kind of verbal discussion, unless any one is absolutely unable to discuss the subject before him in any other way." (Top, 108a1-30)

[lxiv] "For as long as it is not clear in how many senses a term is used, it is possible that the answerer and the questioner are not directing their minds upon the same thing: whereas when once it has been made clear how many meanings there are, and also upon which of them the former directs his mind when he makes his assertion, the questioner would then look ridiculous if he failed to address his argument to this." (Top, 108a22-27)

[lxv] "If, again, the variety of meanings of a term be obvious, distinguish how many meanings it has before proceeding either to demolish or to establish it : e. g. supposing 'the 10 right' to mean 'the expedient' or 'the honourable', you should try either to establish or to demolish both descriptions of the subject in question ; e. g. by showing that it is honourable and expedient, or that it is neither honourable nor expedient." (Top, 110b8-10).

[lxvi] "The discovery of the differences of things helps us both in reasonings about sameness and difference, and also in recognizing what any particular thing is" (Top, 108b1).

[lxvii] "The discovery of the differences of things helps us both in reasonings about sameness and difference, and also in recognizing what any particular thing is. That it helps us in reasoning about sameness and difference is clear: for when we have discovered a difference of any kind whatever between the objects before us, we shall already have shown that they are not the same: while it helps us in recognizing what a thing is, because we usually distinguish the expression that is proper to the essence of each particular thing by means of the differentiae that are proper to it." (Top, 108b1-6)

[lxviii] "The differences which things present to each other should be examined within the same genera, e.g. 'Wherein does justice differ from courage, and wisdom from temperance?'-for all these belong to the same genus; and also from one genus to another, provided they be not very much too far apart, e.g. 'Wherein does sensation differ from knowledge?': for in the case of genera that are very far apart, the differences are entirely obvious." (Top, 107b35-8a5)

[lxix] “We must not be disturbed because it may be argued that, though proposing to discuss the category of quality, we have included in it many relative terms. We did say that habits and dispositions were relative. In practically all such cases the genus is relative, the individual not. Thus knowledge, as a genus, is explained by reference to something else, for we mean a knowledge *of something*. But particular branches of knowledge arc not thus explained.” (Cat, 11a20-25)

[lxx] “Whereas none of the characteristics I have mentioned are peculiar to quality, the fact that likeness and unlikeness can be predicated with reference to quality only, gives to that category its distinctive feature.” (Top, 11a15-18)

[lxxi] “If, then, with regard to any of them we are well supplied with matter for a discussion, we shall secure a preliminary admission that however it is in these cases, so it is also in the case before us: then when we have shown the former we shall have shown, on the strength of the hypothesis, the matter before us as well: for we have first made the hypothesis that however it is in these cases, so it is also in the case before us, and have then proved the point as regards these cases.” (Top, 108b15-35).

[lxxii] “It is useful for inductive arguments, because it is by means of an induction of individuals in cases that are alike that we claim to bring the universal in evidence: for it is not easy to do this if we do not know the points of likeness.” (Top, 108b8-12).

[lxxiii] “It is useful for hypothetical reasonings because it is a general opinion that among similars what is true of one is true also of the rest. If, then, with regard to any of them we are well supplied with matter for a discussion, we shall secure a preliminary admission that however it is in these cases, so it is also in the case before us: then when we have shown the former we shall have shown, on the strength of the hypothesis, the matter before us as well: for we have first made the hypothesis that however it is in these cases, so it is also in the case before us, and have then proved the point as regards these cases.” (Top, 108b13-20).

[lxxivlxxiv] “It is useful for the rendering of definitions because, if we are able to see in one glance what is the same in each individual case of it, we shall be at no loss into what genus we ought to put the object before us when we define it: for of the common predicates that which is most definitely in the category of essence is likely to be the genus.” (Top, 108b20-25).

[lxxv] “The examination of likeness is useful with a view both to inductive arguments and too hypothetical reasonings, and also with a view to the rendering of definitions.” (Top, 108b5)

[lxxvi] “Likeness should be studied, first, in the case of things belonging to different genera” (Top, 107b8-9).

[lxxvii] “Practice is more especially needed in regard to terms that are far apart; for in the case of the rest, we shall be more easily able to see in one glance the points of likeness” (Top, 10812-14).

[lxxviii] “For if we are able to argue that two things are the same or are different, we shall be well supplied by the same turn of argument with lines of attack upon their definitions as well: for when we have shown that they are not the same we shall have demolished the definition. Observe, please, that the converse of this last statement does not hold: for to show that they are the same is not enough to establish a definition. To show, however, that they are not the same is enough of itself to overthrow it.” (Top, 102a11-17).

[lxxix] “People whose rendering consists of a term only, try it as they may, clearly do not render the definition of the thing in question, because a definition is s always a phrase of a certain kind. One may, however, use the word 'definitory' also of such a remark as 'The "becoming" is " beautiful " ', and likewise also of the question, 'Are sensation and knowledge the same or different?', for argument about definitions is mostly concerned with questions of sameness and difference. In a word we may call ' definitory' everything that falls under the same branch of inquiry as definitions; and that all the above-mentioned examples are of this character is clear on the face of them.” (Top, 102a8-11).

[lxxx] “The truth is that the geometer does not draw any conclusion from the being of the particular line of which he speaks, but from what his diagrams symbolize. A further distinction is that all hypotheses and illegitimate postulates are either universal or particular, whereas a definition is neither.” (APo, 77a1-5).

[lxxxi] "It is evident that the way to give the most adequate definition of soul is to seek in the case of each of its forms for the most appropriate definition." (DA, 415a12-14).

[lxxxii] Now if the spoken word corresponds with the judgement of the mind, and if, in thought, that judgement is the contrary of another, which pronounces a contrary fact, in the way, for instance, in which the judgement every man is just pronounces a contrary to that pronounced by the judgement every man is unjust, the same must needs hold good with regard to spoken affirmations. (Int, 23a32-35).

[lxxxiii] We must therefore consider which true judgement is the contrary of the false, that which forms the denial of the false judgement or that which affirms the contrary fact. (Int, 23a38-40).

[lxxxiv] Now that which is good is both good and not bad. The first quality is part of its essence, the second accidental; for it is by accident that it is not bad. But if that true judgement is most really true, which concerns the subject's intrinsic nature, then that false judgement likewise is most really false, which concerns its intrinsic nature. Now the judgement that that which is good is not good is a false judgement concerning its intrinsic nature, the judgement that it is bad is one concerning that which is accidental. Thus, the judgement which denies the truth of the true judgement is more really false than that which positively asserts the presence of the contrary quality. (Int, 23b15-20).

[lxxxv] Now the judgement that that which is good is not good is a false judgement concerning its intrinsic nature, the judgement that it is bad is one concerning that which is accidental. Thus, the judgement which denies the truth of the true judgement is more really false than that which positively asserts the presence of the contrary quality. But it is the man who forms that judgement which is contrary to the true who is most thoroughly deceived, for contraries are among the things which differ most widely within the same class (Int, 23a18-24)

[lxxxvi] "THE question which is the more desirable, or the better, of two or more things, should be examined upon the following lines : only first of all it must be clearly laid down that the inquiry we are making concerns not things that are widely divergent and that exhibit great differences from one another (for nobody raises any doubt whether happiness or wealth is more desirable), but things that are nearly related and about which we commonly discuss for which of the two we ought rather to vote, because we do not see any advantage on either side as compared with the other." (Top, BkIII, 116a1-12)

[lxxxvii] "Clearly, a critical educational science requires that teachers become researchers into their own practices, understandings and situations" (Carr and Kemmis, 1986:162).

[lxxxviii] This notion is difficult for positivist researchers to accept, despite the fact that positivist laws are based on scientific laws retrospectively derived from past situations.

[lxxxix][lxxxix] Primary sources are records created for or during a specific event, i.e. something that took place at a specific time, place, or is still taking place. Other terms used are raw data, first-hand, original etc. Examples of primary material are autobiographies, speeches, lectures, interviews, personal papers, letters, emails, diaries and journals, photographs, records, etc. These can even include material artifacts such as software, hardware, works of art etc. if they are the subject or the result of the investigation (FIN Research, 2010).

[xc] "The result of phronetic planning research is a pragmatically governed interpretation of the studied practices" (Flyvberg, 2001:140).

[xci] "It is not possible to be good in the strict sense without practical wisdom, or practically wise without moral virtue" (EN, 1144b30-32). "For with the presence of …practical wisdom, will be given all the other virtues" (EN, 1145a1-2)

[xcii] "Kundera's account of the limitations of interpreting from "what happens once" are, of course, in many senses valid— In fact, they are at the root of the poor relation status of the case study as a way of conducting research." (Thomas, 2010: 575).

[xciii] "It should make assumptions about people thinking, having beliefs and motives, making choices—people with histories and interests, with different horizons of meaning, people who have agency." (Thomas, 2010: 579).

[xciv] "We see, then, that this is the only way in which any one ever proves anything, whether his arguments are strictly cogent or not: not all facts can form his basis, but only those that bear on the matter in hand: nor, plainly, can proof be effected otherwise by means of the speech. (Rhet, 1396a35-b3)

[xcv] "Enthymemes also have been described, and the sources from which they should be derived; there being both special and general lines of argument for enthymemes" (Rhet, 1403b12-15").

[xcvi] "The example is an induction, the enthymeme is a syllogism, and the apparent enthymeme is an apparent syllogism" (Rhet, 1356b3-5).

[xcvii] "The difference between example and enthymeme is made plain by the passages in the Topics (Bk I, Ch. 1 and 12) where induction and syllogism have already been discussed. When, we base the proof of a proposition on a number of similar cases, this is induction in dialectic, example in rhetoric ; when it is shown that, certain propositions being true, a further and quite distinct proposition must also be true in consequence, whether invariably or usually, this is called syllogism in dialectic, enthymeme in rhetoric" (Rhet, 1356b10-17).

[xcviii] "Now induction is the starting point which knowledge even of the universals presupposes, while syllogisms proceeds from universals (EN, 1139b28)

[xcix] "All teaching starts from what is already known. For it proceeds sometimes through induction and sometimes by syllogism (deduction)" NE (1139b27)

[c] "The advocates of circular demonstration are not only faced with the difficulty we have just stated: in addition their theory reduces to the mere statement that if a thing exists, then it does exist-an easy way of proving anything." (APo, 72b32-35)

[ci] "Demonstrative knowledge must be knowledge of a necessary nexus, and therefore must clearly be obtained through a necessary middle term" (APo, 75a12).

[cii] "For people call that the index which makes us know, and the middle term above all has this character" (APo, 70b2).

[ciii] "To put it another way: how shall we by definition prove *essential nature?* He who knows what human-or any other -nature is, must know also that man exists; for no one knows the nature of what does not exist - one can know the meaning of the phrase or name 'goat-stag' but not what the essential nature of a goat-stag is. But further, if definition can prove what is the essential nature of a thing, can it also prove that it exists? And how will it prove them both by the same process, since definition exhibits one single thing and demonstration another single thing, and what human nature is and the fact that man exists are not the same thing? Then too we hold that it is by *demon'stratio1l* that the being of everything must be proved unless indeed to be were its essence; and, since being is not a genus, it is not the essence of anything. Hence the being of anything as fact is matter for demonstration; and this is the actual procedure of the sciences, for the geometer assumes the meaning of the word triangle, but that it is possessed of some attribute he proves. What is it, then, that we shall prove in defining essential nature? Triangle? In that case a man will know by definition what a thing's nature is without knowing whether it exists. But that is impossible." (APo, 92b3-18).

[civ] However, in evaluating good action or theorising about action, one needs to *know-how* or *know-that*, and for that one needs to look at the aspect of Episteme, hence the critique by Kristjánsson (2005).

[cv] "Next, then, we must distinguish between the classes of predicates in which the four orders in question are found. These are ten in number: Essence, Quantity, Quality, Relation, Place, Time, Position, State, Activity, Passivity. For the accident and genus and property and definition of anything will always be in one of these categories: for all the propositions found through these signify either something's essence or its quality or quantity or some one of the other types of predicate." (Top, 103b20-27)

[cvi] “Sometimes it signifies what happens at a certain time, as (e. g.) the good that happens at the right time: for what happens at the right time is called good.” (Top, 107a8-10)

[cvii] “Often it signifies what is of a certain quantity, e. g. as applied to the proper amount: for the proper amount too is called good. So, then the term 'good' is ambiguous.” (Top, 107a10-12).

[cviii] “Rightness does not consist either in rapidity or in conciseness, but in the happy mean; that is, in saying just so much as will make the facts plain, or will lead the hearer to believe that the thing has happened, or that the man has caused injury or wrong to someone, or that the facts are really as important as you wish them to be thought : or the opposite facts to establish the opposite arguments” (Rhet, 1416b35-1417a3).

[cix] “The classes, then, of things about which, and of things out of which, arguments are constructed, are to be distinguished in the way we have said before. (Top, 105a20-22).

[cx] “Now one way to confirm that the elements mentioned above are those out of which and through which and to which arguments proceed, is by induction: for if any one were to survey propositions and problems one by one, it would be seen that each was formed either from the definition of something or from its property or from its genus or from its accident.” (Top, 103b1-5)

[cxi] “The means, then (Common Topics), whereby reasonings are effected, are these: the commonplace rules, for the observance of which the aforesaid means are useful, are as follows.” (Top, 108b35-37)

[cxii] “Aristotle sometimes treats genus, peculiar property, definition, and accident as including all possible predications (e.g. Topics I). Later commentators listed these four and the differentia as the five predicables, and as such they were of great importance to late ancient and to medieval philosophy (e.g., Porphyry).” (Smith 2016:16)

[cxiii] “For all such propositions have for their subject either the individual or the species. It is true that, inasmuch as *(1) primary substance* is not predicable (*kategoroumenon*) of anything, it can never form the predicate of any proposition. But of secondary substances, the *(3) species* is (*a kategoria*) of the *(4) individual*, the *(2) genus* both of the species and of the individual. Similarly the *(5) differentiae* are predicated of the species and of the individuals. Moreover, the definition of the *species* and that of the *genus* are applicable to the *primary substance*, and that of the *genus* to the *species”* (Cat, 3a35-40).

[cxiv] “In fact, the metaphor is a convenient one for designating the relation of every Universal generally to its particulars: the Universal is not a new particular, nor any adjunct superimposed upon all its particulars, but simply a *place* in which all known similar particulars may be found grouped together, and in which there is room for an indefinite number of new ones. If we wish to arm the student with a large command of dialectical artifices, we cannot do better than discriminate the various groups of arguments, indicating the point of view common to each group, and the circumstances in which it becomes applicable. By this means, whenever he is called upon to deal with a new debate, he will consider the thesis in reference to each one of these different *loci,* and will be able to apply arguments out of each of them, according as the case may admit.” (Grote, 1872: 409)

[cxv]"...there is no basis for any claim that we know how teaching about race relations should be conducted...such a situation points clearly towards a research approach...so too does the observation that no suggestion for teaching is likely to hold for the full range of circumstances which obtain in schools" (Stenhouse, 1975: 127)

[cxvi] Some notes on my plans for tomorrow:
Looking at issues of race and gender :-)
First ask the students to conduct research on themselves by organising themselves into groups, and then noting the numbers.
Play clip on George Carlin "Brain Droppings" Specific note of 25 minutes till 30:50
Trevor Noah
The direction I seem to be taking with this line of inquiry, is whether marks, race, culture etc, make the person, and am asking the students to think of themselves in that context that they are placed.
Julius on Caster Semenya on Gender 5:20-8:30
Julius on Racism 9:30

On Accents "Management" 10:00-11:40
On Race/Country/Cape Town 22:00
"Being Coloured" 36:50 / Daywalker 41:43 TILL 44:50
"Imaginary Friend" till 47:30
"Dancing" “Angry on wages" till 50:00
Maybe leading onto George Carlin
THEN the Milgram Experiment (Which sections?) on control/coercion (Next lesson to illustrate how educators/professors/teachers can become part of the oppression)

[cxvii] But then as time passed by I realised that we were reflecting in order to see how we have grown throughout this course and how our way of thinking has evolved. (C4_SKP)

[cxviii] EMS Faculty Teaching Excellence Award (ETEA) Nomination. See *Section XII.2.viii ETEA Nomination* on p. 506.

[cxix] “Over other kinds of knowledge, then, there is something superior that diverts them; but how can there be any knowledge that diverts the highest knowledge of all? There is no longer any knowledge or intuitive reason to do this. But neither can virtue do it, for prudence uses that; for the virtue of the ruling part uses that of the subject. Who is there then whose prudence is thus diverted? Perhaps the position is like that of incontinence, which is said to be a vice of the irrational part of the soul.” (EE, 1246b8-15).

[cxx] “But if this is so, shall we say that fortune does not exist at all, or that it exists but is not a cause? No, it must both exist and be a cause. It will, then, also cause good or evil to certain people. But whether it is to be wholly removed, and we ought to say that nothing happens by chance, but do say that chance is a cause simply because, though there is some other cause, we do not see it (and therefore, in defining chance, some make it a cause incalculable to human reasoning, taking it to be a genuine reality) this would be matter for another inquiry.” (EE, 1247b4-10).

[cxxi] “The object of our search is this - what is the commencement of movement in the soul? The answer is clear: as in the universe, so in the soul, God moves everything. For in a sense the divine element in us moves everything. The starting-point of reasoning is not reasoning, but something greater. What, then, could be greater even than knowledge and intellect but God?” (EE, 1248a25-27).

[cxxii] “Courage and endurance are required for business and philosophy for leisure, temperance and justice for both, and more especially in times of peace and leisure, for war compels men to be just and temperate, whereas the enjoyment of good fortune and the leisure which comes with peace tend to make them insolent” (Pol, 1134a21-25).

[cxxiii] The difference between ‘in what way’ and ‘in which way’ can be explained as follows. When ‘what’ is used, the number of options is unclear such as ‘what colour do you like. When ‘which’ is used, it refers to a limited choice i.e. which colour shoes are you going to wear?

[cxxiv] A simple example is that everyone knows that one needs to exercise and eat right in order to stay slim and be healthy. Yet despite the fact that they know this, they do not ‘listen’ to this advice and still eat what they want and don’t exercise.

[cxxv] These can be mapped to refer to ‘which’ topics or subjects students learn, ‘how’ they learn’, ‘why’ they learn, and ‘when’ they learn respectively. Of course the reader will notice that Grapragasem et al. (2015) have neglected the other elements of ‘who’ is learning or ‘who’ is teaching, ‘where’ they are learning, ‘with’ what tools and resources as well as ‘what’ they are doing; all of which are fundamental aspects of effective classroom management.

[cxxvi] “Now reasoning is an argument in which, certain things being laid down, something other than these necessarily comes about through them. (a) It is a 'demonstration', when the premisses from which the reasoning starts are true and primary, or are such that our knowledge of them has originally come through premisses which are primary and true: (b) reasoning, on the other hand, is 'dialectical' if it reasons from opinions that are generally accepted.” (Top, 100a25-30)

[cxxvii] “We must also define the errors that occur in problems. They are of two kinds, caused either by false statement or by transgression of the established diction. For those who make false statements, and

say that an attribute belongs to a thing which does not belong to it, commit error; and those who call objects by the names of other objects (e.g. calling a plane·tree a ' man') transgress the established terminology." (Top, 109a25-30)

[cxxviii] I explored these works, and specifically the Categories, Analytics and Topics in depth over a period of a year and a half, and wrote more than 200 pages on this. It is not possible to include this analysis in this thesis, but is available if needed for discussion. The point is that this theory is strongly rooted in these treatises, as are a number of more modern theories. Despite all the theories that I have found using these elements, I have yet to find one that acknowledges Aristotle's extant works. In this way, I am the first modern researcher that has returned to the extant works of the father of ancient logic, Aristotle.

[cxxix] Fortunianus shows that these loci may concern materials "ante rem, in re, circa rem and post rem" or as translated to "before, during, about and after/concerning" reality or referring to reality (Fortunianus in Rhetores Latini Minores (1863), ed. Halm, (Leipzig, 1863), p.115 in Robertson 1956:10).

[cxxx] "Our *survey* from the *point of view* of consequences lies in two directions, for there are prior consequences and later consequences...the later consequence is the better to consider. e. g. if a man learns, it follows that (earlier) he was ignorant before and (later) knows afterwards" (Aristotle, Topics, 117a11-15)

[cxxxi] "The characters and circumstances which lead men to commit wrong, or make them the victims of wrong" in order to accuse or defend

[cxxxii] http://www.thesecretweapon.org/the-secret-weapon-manifesto/setting-up-the-secret-weapon